store your future

# ROCPRO 900e

User Manual

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# IMPORTANT NOTICES

## Safety Notices

- The warranty is void if an unauthorized person attempts and/or repairs the hard disk drive.
- Read all Manuals and instructions carefully before using the device.
- Do not spill any liquid or insert any object into the device.
- Use the device within the specifications indicated, including but not limited to: power requirements, temperature, humidity, sunlight and magnetism from other devices such as computers and televisions.
- Please visit the Rocstor website, www.rocstor.com for further information concerning specifications and use of the device.

## General Notices

- Consistently make multiple backup copies of your data for your protection. Hard disk drives are subject to failure at any time.
- Rocstorage, Inc. shall not be held liable for loss of data or the restoration or recovery of data on the device. Please view complete Limited Warranty Information in this manual or on the Rocstor website (www.rocstor.com) for further details.

## Capacity Disclaimer

Actual accessible hard drive capacity will indicate up to 10% lower than stated under different Operating Systems and formatting.

The storage volume is measured in total bytes before formatting. References to round numbers of gigabytes or terabytes are an approximation only. For example, a disk drive labeled as having 500GB (gigabytes) has space for approximately 500,000,000,000 bytes before formatting. After formatting, the drive capacity is reduced by about 5% to 10% depending on the operating system and formatting used.

## Care and Handling

The following instructions concern the proper care and handling of Rocpro 900e Drives. Please take a moment to review these instructions.

- As with any storage solution, it is recommended that all data be backed up regularly.
- Ensure that you follow the proper removal procedure to disconnect the Rocpro drive.
- Do not move or disconnect this device from your computer while it is reading or writing data. This may cause damage to the Rocpro drive.
- Do not place this device near a heat source or expose it to direct flame.
- Do not place the device near any equipment generating strong electromagnetic fields. Exposure to strong electromagnetic fields may cause the device to malfunction or data to be corrupted.
- Do not drop or cause shock to your Rocpro drive.

- Do not spill any liquid or insert any object into the device.

- Do not attempt to disassemble and service the Rocpro drive during the warranty period.
- Please read the Safety Notices and Limited Warranty information in this Manual and on the Rocstor website (www.rocstor.com) for further details.

## GENERAL

### Introduction

ROCPRO 900e
USB 3.0 (2.0), 2xFireWire 800 (400) and eSATA

The new generation of Rocpro external SATA Hard Drives delivers extraordinary performance and reliability for both Mac and PC users. Specifically designed for demanding audio/video professionals, the Rocpro 900e contains a fast SATA high capacity 3.5” drive in a stylish and unique aluminum case that can be stacked or mounted vertically. With its built-in power supply, fan-less and quiet operation, the Rocpro 900e can be easily moved from one desktop environment to another using the provided carrying case.

Choose Rocstor drives and store your future.

## Box Contents

- External hard disk drive
- Stand for vertical mounting
- USB 3.0 cable
- 9-pin to 9-pin FireWire 800 (1394b) cable
- eSATA cable
- AC power cord
- Installation user Guide
- Carrying case

## Minimum System Requirements

### Mac Users:

**Hardware:** eSATA or FireWire 800* (0r 400**) or USB 3.0 (2.0) port(s.)

**Mac:** PowerPC or Intel processor running Mac OS 9, X, Leopard, Snow Leopard, Lion

**Recommended memory:** 512 MB RAM

### Window Users:

**Hardware:** eSATA or FireWire 800* (0r 400**) or USB 3.0 (2.0) port(s.)

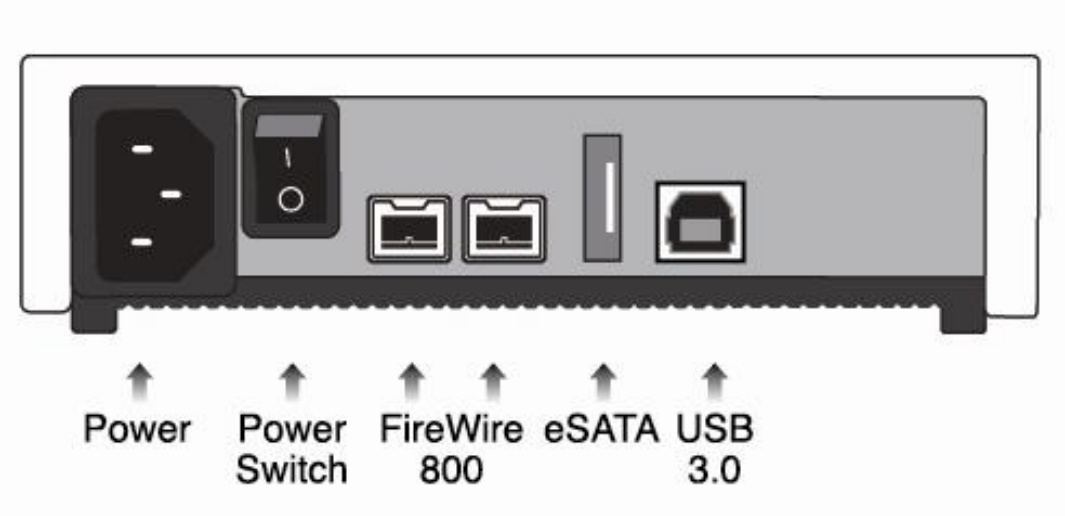
**Operating Systems:** Microsoft Windows 2000, Me, XP, Vista, Windows 7

**Recommended memory:** 512 MB RAM

* Many computers do not come with factory installed FireWire 800. Therefore, you may need to purchase a PCI, PCI-X or PCI-Express card to use these ports. Rocstor offers a variety of accessories to work with PC Windows or Mac based Computers. Please visit us at www.ROCSTOR.com

## Connectors

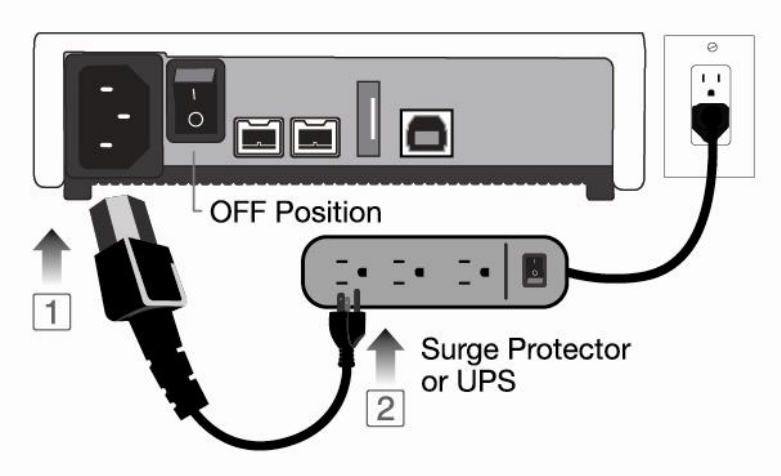
- FireWire 800 (IEEE 1394b) port x2
  (You may connect FireWire 800 to a FireWire 400 port via a special cable {also read page 12})
- Standard AC power input connection
- ON/OFF power switch
- USB 3.0 port x1
- eSATA



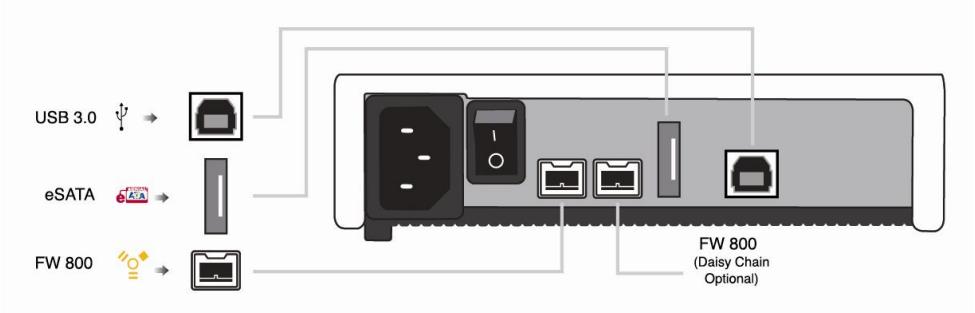
## QUICK INSTALLATION

## How to Connect the Interface Cables - Connecting the Drive

1. Turn ON your computer and wait until it fully boots up to load all programs.
2. Connect one end of the power cord directly to the Rocpro 900e and the other end to an AC outlet, surge protector or battery Backup (UPS).

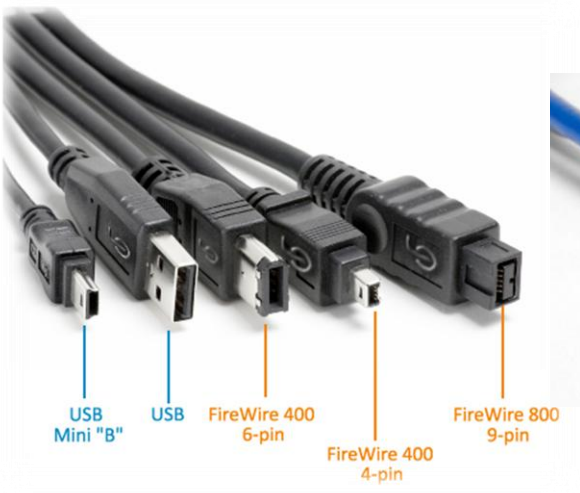


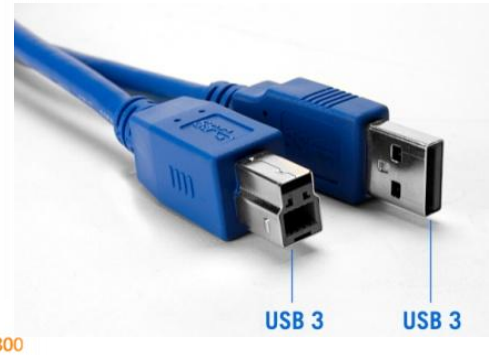

3. Using only one interface cable at a time, select the interface port you wish to use on your computer. Connect one end of the cable to the Rocpro 900e and the other end to the computer. Please review cable types on the next page:




4. Turn the Rocpro 900e Hard Drive switch ON.
5. The Hard drive is preformatted for Plug-and-Play operation. After a few seconds a Rocstor HD icon will show on the “My Computer” folder under the Windows OS. Under the Mac OS, the Rocport HD will appear on the “Desktop.”
6. Click (double click) on the Rocstor HD icon to access the drive.

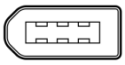
## Cable Types



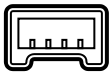

**FireWire 400 (IEEE 1394a)** 6-Pin FireWire 400 connector

- FireWire 400 can transfer data between devices at 400 Mbits/sec



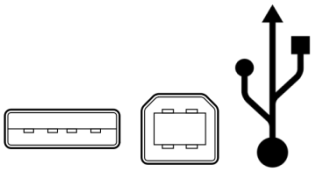
**FireWire 800 (IEEE 1394b)** 9-Pin FireWire 800 connector

- FireWire 400 can transfer data between devices at 800 Mbits/sec

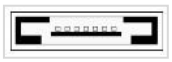


**USB supports three data transfer rates:**

- USB 2.0: A Hi-Speed (USB 2.0) rate of 480 Mbits/s (60 MB/sec)
- USB 1.1: A **Full Speed** rate of 12 Mbits/s (1.5 MB/sec)
- USB 1.0: A **Low Speed** rate of 1.5 Mbits/s (187 KB/sec)



**S**erial **A**dvanced **T**echnology **A**ttachment (**SATA)** is a computer bus primarily designed for transfer of data between a computer and storage devices (like hard disk drives or optical drives). The transfer rate for Rocpro 900e is **SATA 1.5GB/sec.** SATA Maximum cable length is 6.6 Ft (2 meters). USB and FireWire allow longer distances.



## INSTALLING YOUR DRIVE

All Rocstor hard drives are formatted as blank FAT32 (32-bit file allocation table) volumes {unless otherwise stated on the box} that are compatible with most modern Windows and Macintosh operating systems. To begin using your Rocstor drive, simply connect a data cable and power cord. There's no need to shut down your computer because your Rocstor drive is hot-pluggable. Just plug it in and it's ready to use.

The first choice you have to make is which of the provided data cables to use. The drive can connect directly to any available FireWire or USB port on your computer, or it can be Daisy-Chained to your computer through another compatible device with an available FireWire port. The ability to Daisy-Chain allows you to have multiple drives connected simultaneously, greatly increasing your available storage capacity. Daisy-Chain is only available through FireWire ports.

If you intend to use the drive for additional storage only—not as a startup device (bootable) use the cable that provides the maximum throughput rate for the buses available on your computer: Up to 800 Mbits/sec via FireWire 800, Up to 480 Mbits/sec via USB 2.0, Up to 5,000 Mbits/sec via USB 3.0, Up to 400 Mbits/sec via FireWire 400, 12 Mbits/sec via USB 1.1 or Up to Up to 3,000 Mbits/sec via eSATA. To avoid damaging your hardware and losing data, never simultaneously connect the drive to the computer using more than one data cable.

### Rocpro as a bootable device

If you intend to use the drive as a startup device, check the documentation that came with your computer to confirm compatibility with the various interfaces. PowerPC-based Macs require FireWire connections for startup disks, whereas Intel-based Macs can use either FireWire or USB connections.

Furthermore, using the drive as a startup device requires installing an authorized copy of the Windows or Mac operating system (available separately from Microsoft and Apple, respectively). To install the Mac OS 9 or OS X, you must reformat the drive as a Mac OS Extended volume with Disk Utility. An Intel-based Mac cannot start from a device formatted on a PowerPC-based Mac or vice versa.

### Disconnecting Your Drive

Never disconnect or turn off an external drive when its activity light is ON. External drives must be properly un-mounted (or disconnected) to avoid data loss and possible damage to the hard disk drive or computer.

### PC

The easiest ways to safely un-mount an external hard drive on your PC is to right-click the device removal icon next to the clock in the system tray. Then choose Safely Remove Hardware. Choose the external device you want to remove, and then click Stop. An alert will notify you if the drive is in use by an application. If in use close any open documents or applications on the

drive and try again. Windows will display an alert when you can safely disconnect or turn off the drive.

## Mac

The easiest way to safely un-mount an external hard drive is to drag its Finder icon to the Trash. An alert will notify you if the drive is in use by an application. Close any open documents or applications on the drive and try again. When the drive's icon no longer appears on the Finder's Desktop and the drive's activity light is green, you can safely disconnect or turn off the drive.

## Reformatting Your Drive

As mentioned previously, all Rocstor hard drives are formatted as blank FAT32 volumes (otherwise noted on the retail packaging) that are compatible with most modern Windows and Macintosh operating systems. However, you can use your normal disk management tools to erase or reformat the drive if needed. For example, Windows users may want to reformat the drive as an NTFS (new technology file system) volume, or Mac OS X users may wish to reformat the drive as a Mac OS Extended (Journal) or UFS (Unix file system) volume.

**Please note that all of your data will be lost if the volume (Hard Drive) is formatted or reformatted.**

## Reformatting via PC (Window based computers)

Right-click the Rocpro drive in the "My Computer" folder, then choose Format. In the dialog window that appears, choose the desired capacity, file system and allocation unit size and then click Start.

## Reformatting via Mac

Open Disk Utility (/Applications/Utilities). Select the drive in the list at the left, then click the Erase tab. Choose the desired volume format, specify a name, then click Erase.

## Important Note

Any cable (FireWire800, or USB 3.0) inserted before the drive is powered on has priority over the other cables and will be the primary connection method, e.g. if the drive is connected via FireWire 800 before powering on the drive, data will be transferred via FireWire 800.
The drive should only be connected to a computer via **one** interface at a time. Connection of the drive to a computer via two or more interfaces is not recommended and may potentially damage your Rocpro drive and data.

## How to Daisy-Chain through FireWire ports to your Rocpro Drive at one time

Daisy-Chain (Connecting Multiple Devices) means that device A is connected to device B and device B is connected to device C and so forth. All connections are made only through FireWire ports.

- Do not mix interfaces. Select FireWire ports only. For example, do not use USB and FireWire to Daisy-Chain.
- Mixing FireWire 400 and 800 connectors to Daisy- Chain will reduce the transfer speed to FireWire 400.
- Daisy-Chain allows you to connect multiple devices, such as cameras, external read/write drives and other external devices such as hard disk drive to your computer via FireWire ports.

## PARTITIONING AND FORMATTING THE ROCPRO DRIVE ON A MAC OS

All Rocstor drives are factory formatted with FAT32, unless otherwise stated on the retail box.

**WARNING:** Formatting and Partitioning the Rocpro Drive will destroy all of its data. To protect your data, back it up before formatting or partitioning this device.

**IMPORTANT NOTES:**

1. All programs should be closed before beginning.
2. Connect the Rocstor hard disk drive to your computer using the appropriate cables.
3. Turn ON the Rocstor hard disk drive. Some Rocstor HDs are bus-powered and turn ON automatically. Look for a Blue or Green light.
4. "Click" means left click. "Right Click" will be so labeled.
5. Some computers are set so a single "click" will perform the task, such as opening a window. Depending on your mouse setting, you may have to double click to get to the next window. If a single click does not open the next window, please double click.

**INSTRUCTIONS FOR PARTITIONING AND FORMATTING FROM FAT32 to HFS+:**

1. Connect the Rocstor drive to the computer via a port.
2. The drive will appear as an icon on the Desktop on the middle right side (figure 1.0 below) the icon will represent the method of connection (USB or FireWire).

Figure 1.0

**USB Connection**
Figure 1.1

**FireWire Connection**
Figure 1.2

Note: If the Hard Drive is connected via USB port, the desktop would indicate the **USB** (figure 1.1) if it is connected via **FireWire** port, it would then indicate **FireWire** as (figure 1.2) on the "**Macintosh HD**" icon. The same procedures would also apply to the following steps.

3. Once the icon appears on the "**Desktop**" click on the "**Macintosh HD**" icon (figure 2.0)

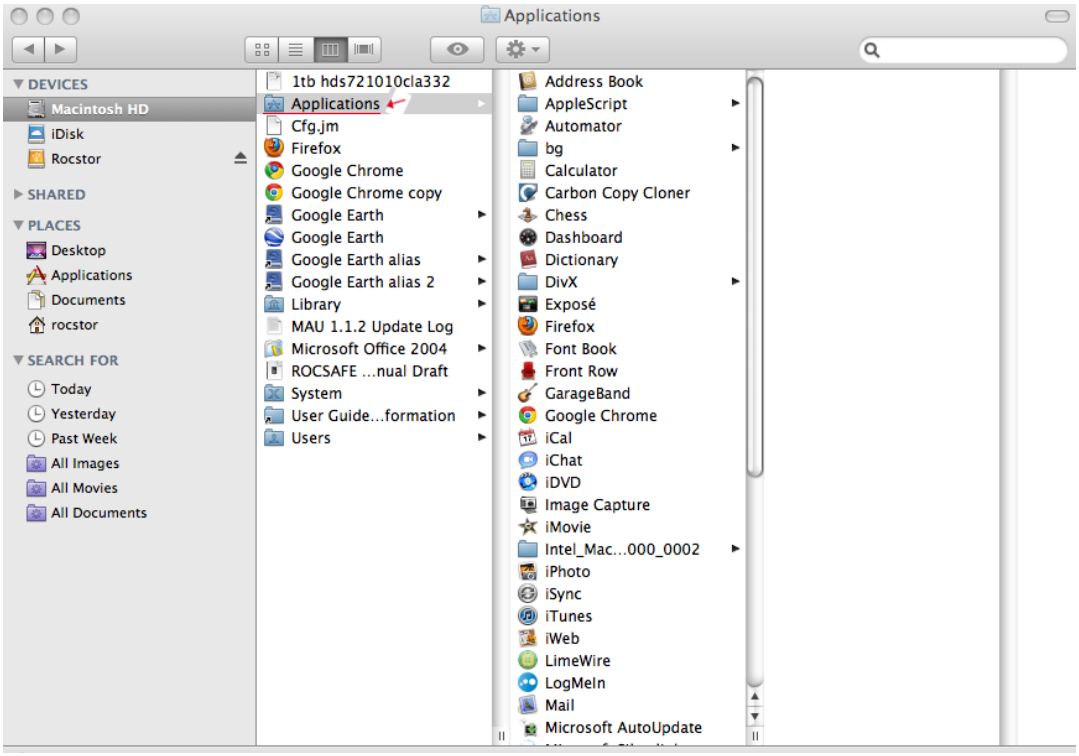



Figure 2.0

4. In the “**Macintosh HD**” menu, click on the “**Applications**” icon.
5. In the “**Applications**” menu, click on the “**Utilities**” icon (figure 3.0.)

Figure 3.0

6. In the “Utilities” menu, click on the “**Disk Utility**” icon (figure 4.0.)

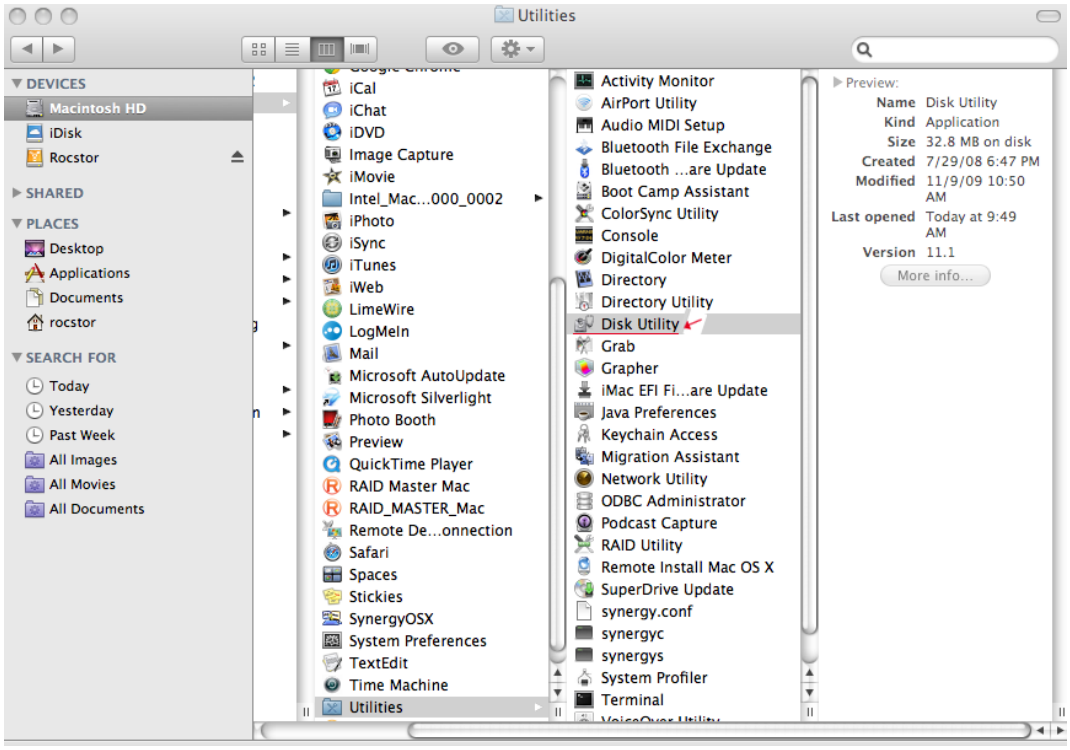



Figure 4.0

7. On the left side of the "**Disk Utility**" menu is a list of available drives (figure 5.0.) One will show as Rocstor drive. Click on the icon showing the disk capacity (figure 5.1.)

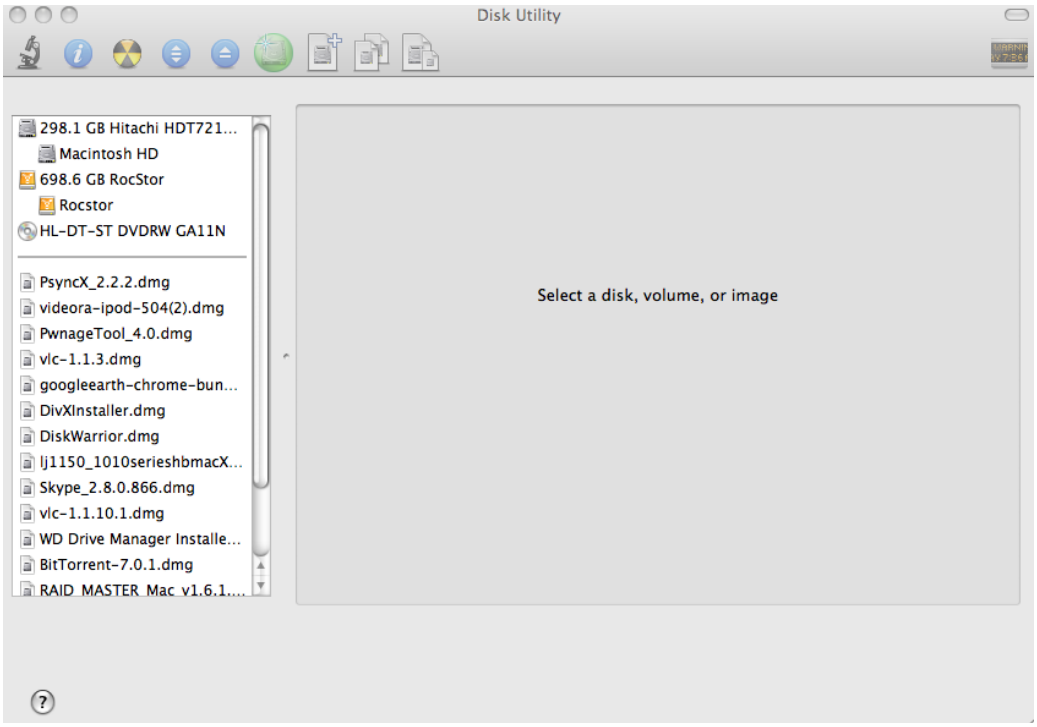



Figure 5.0

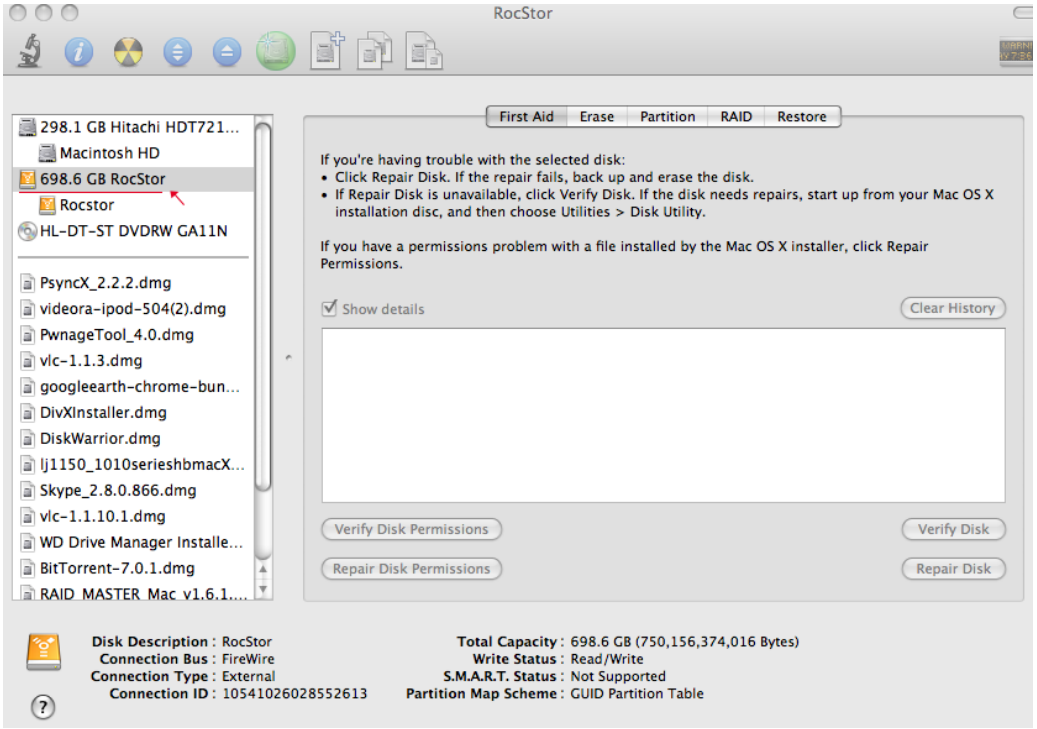



Figure 5.1

8. You are now in the Rocstor menu. Click on the "**Partition**" tab and then click the "Current" tab under "Volume Scheme." A drop down "**Partition**" menu will appear.
9. In the "**Partition**" menu, you may select any number of partitions available under "Volume Scheme."
10. If you are using Panther proceed to #13 below.
11. If you are using Tiger, Leopard, Snow Leopard or Lion click on Options on the lower center of the window. Select the Partition Scheme for your Rocstor drive. Suggest you select "**Apple Partition Map**" for Tiger, Leopard, Snow Leopard and GUID partition table for Lion, (figure 6.0) and then click OK.

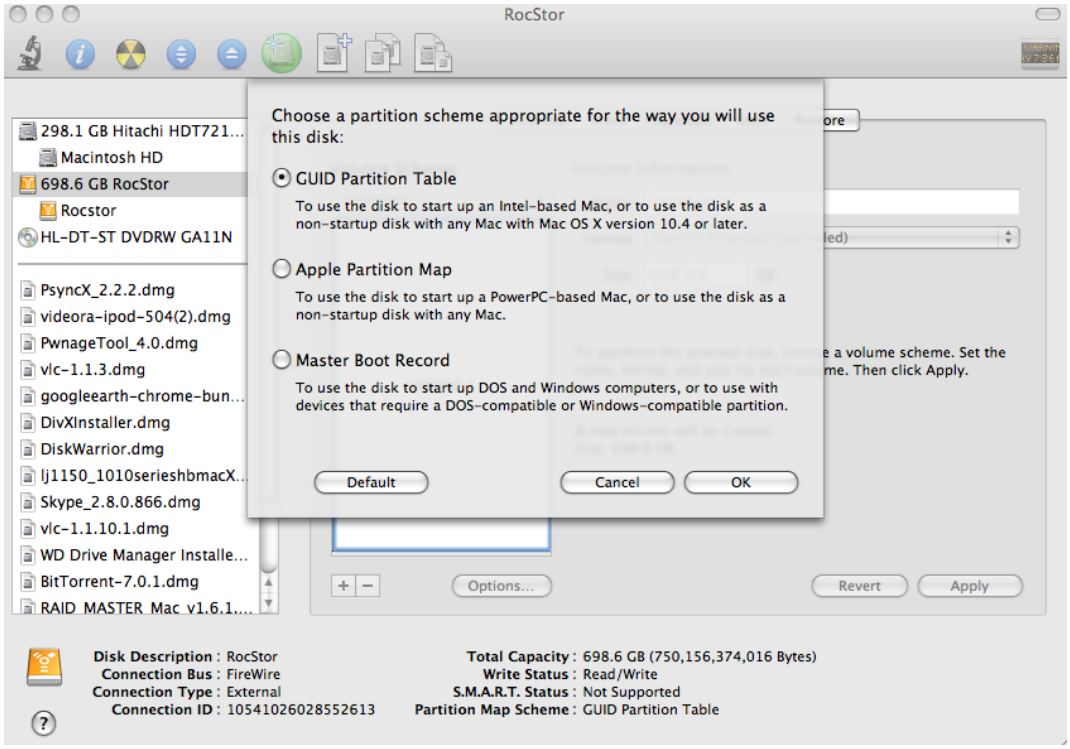

RocStor
Choose a partition scheme appropriate for the way you will use this disk:
GUID Partition Table
To use the disk to start up an Intel-based Mac, or to use the disk as a non-startup disk with any Mac with Mac OS X version 10.4 or later.
Apple Partition Map
To use the disk to start up a PowerPC-based Mac, or to use the disk as a non-startup disk with any Mac.
Master Boot Record
To use the disk to start up DOS and Windows computers, or to use with devices that require a DOS-compatible or Windows-compatible partition.
Default
Cancel
OK
298.1 GB Hitachi HDT721...
Macintosh HD
698.6 GB RocStor
Rocstor
HL-DT-ST DVDRW GA11N
PsyncX_2.2.2.dmg
videora-ipod-504(2).dmg
PwnageTool_4.0.dmg
vlc-1.1.3.dmg
googleearth-chrome-bun...
DivXInstaller.dmg
DiskWarrior.dmg
lj1150_1010serieshbmacX...
Skype_2.8.0.866.dmg
vlc-1.1.10.1.dmg
WD Drive Manager Installe...
BitTorrent-7.0.1.dmg
RAID_MASTER_Mac_v1.6.1....
Options...
Revert
Apply
Disk Description : RocStor
Connection Bus : FireWire
Connection Type : External
Connection ID : 10541026028552613
Total Capacity : 698.6 GB (750,156,374,016 Bytes)
Write Status : Read/Write
S.M.A.R.T. Status : Not Supported
Partition Map Scheme : GUID Partition Table

Figure 6.0

12. Volume Information: select a name for your drive (figure 7.0.)

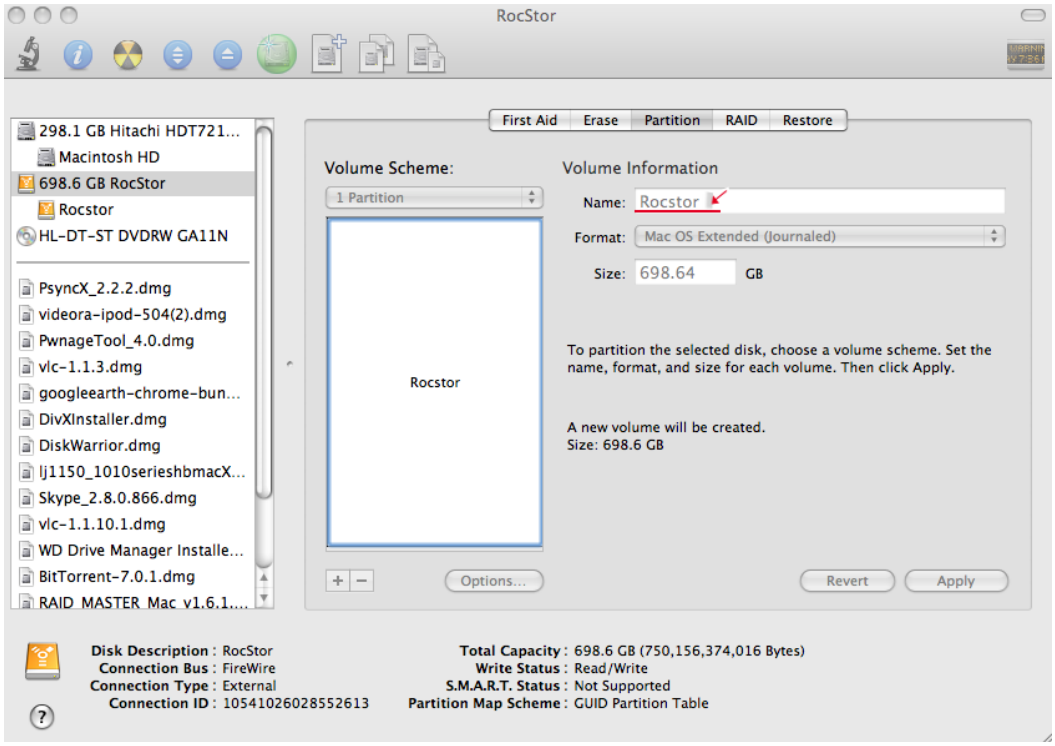



Figure 7.0

13. Format: Click on either the "**Format**" area or the Blue up/down arrows. Select **Mac OS extended (journal)**.

14. After selecting the type of format, click the "**Apply**" tab in the lower right of the screen, (figure 7.1.) On the next screen, Partition Disk, click "**Partition**" (figure 8.0)

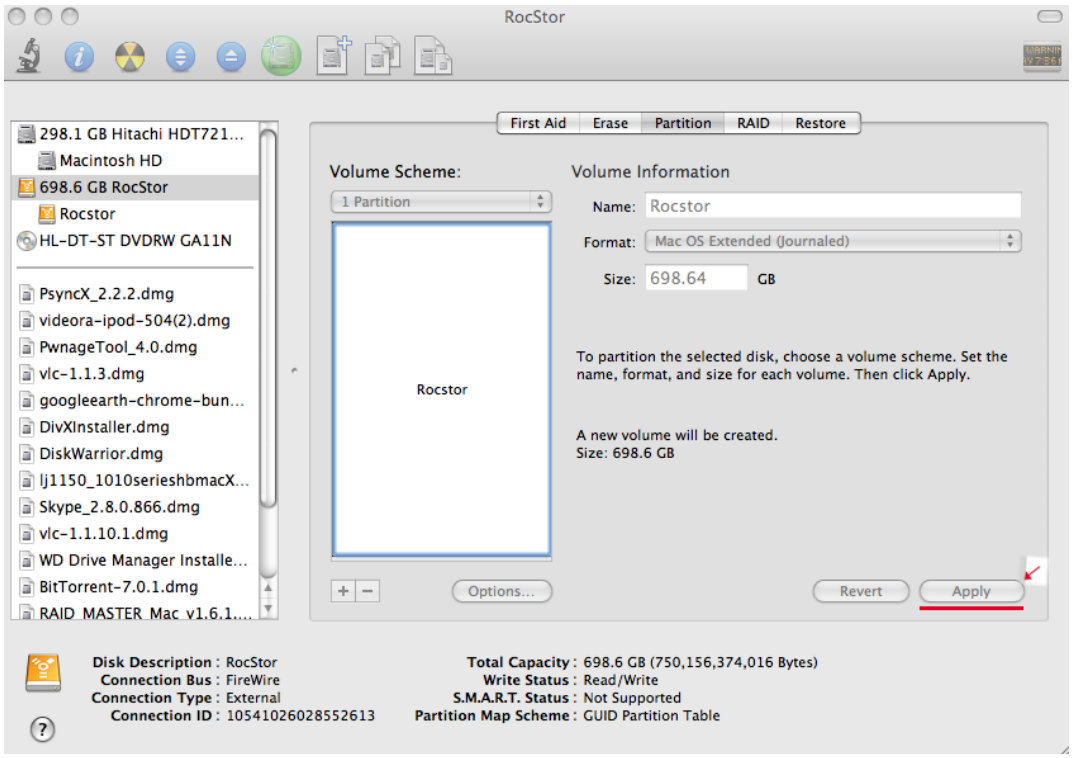



Figure 7.1

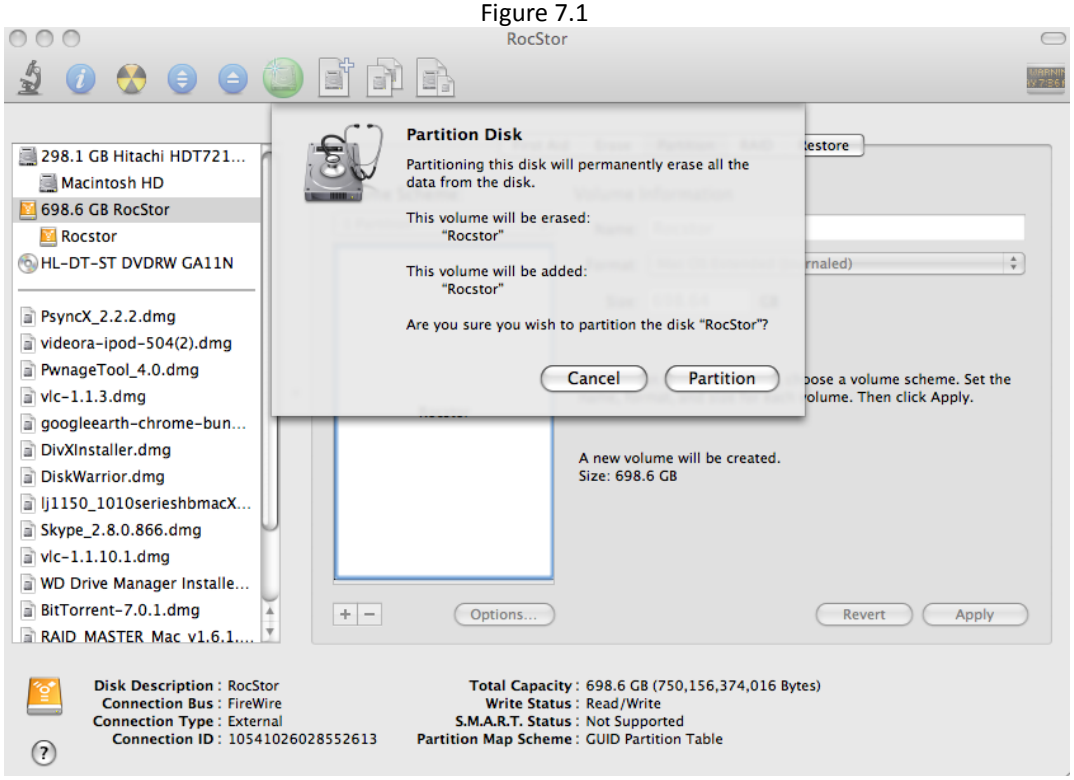



Figure 8.0

15. The drive will begin to format (figure 8.1) and upon completion; the same icon that first appeared on the Desktop will reappear with your designed name on the Desktop (figure 9.0)

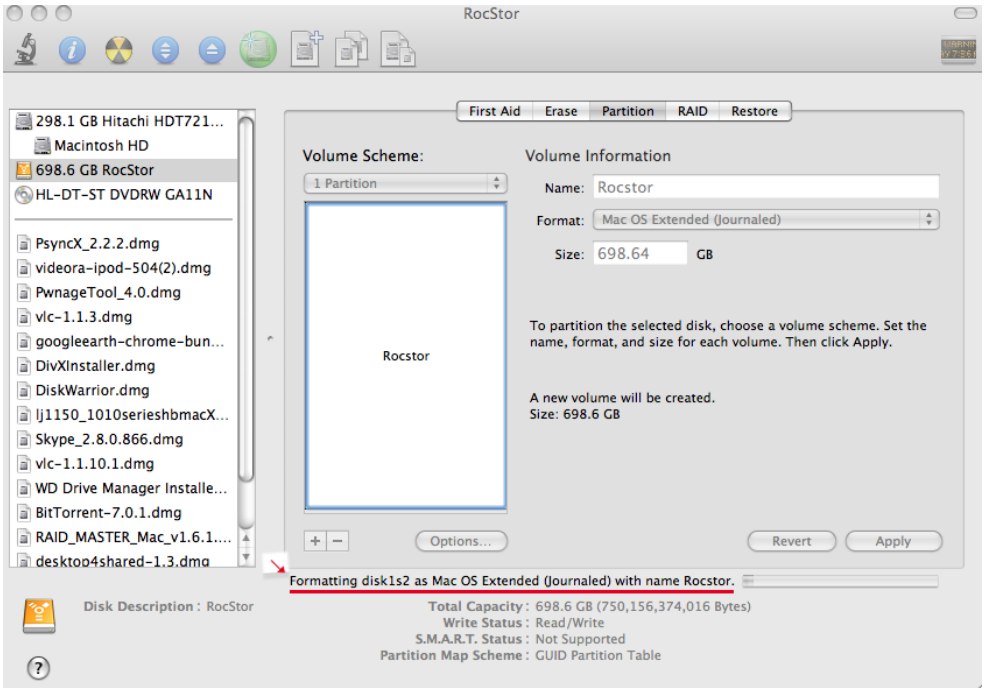



Figure 8.1

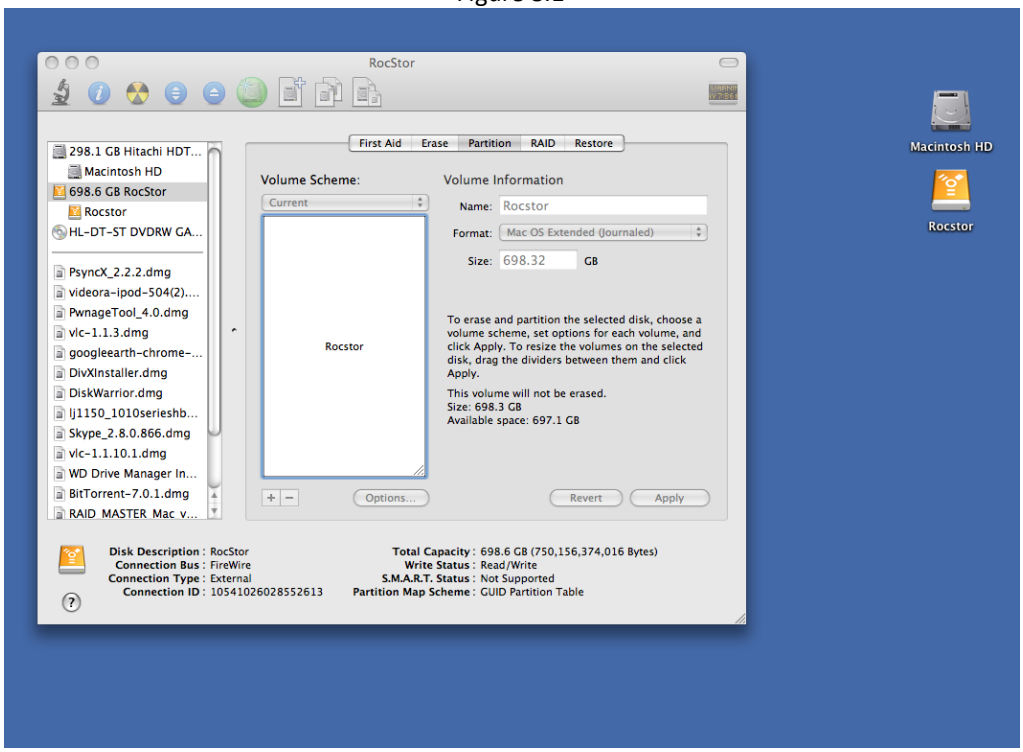



Figure 9.0

16. You can now Exit or close to return to the desktop.

## PARTITIONING AND FORMATTING THE ROCPRO DRIVE ON WINDOWS 2000, XP AND VISTA and Windows 7

All Rocstor drives are factory formatted with FAT32, unless otherwise stated on the retail box.

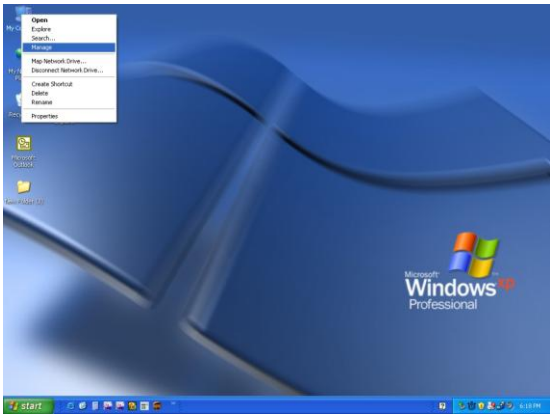
**WARNING:** Formatting and Partitioning the Rocpro Drive will destroy all of its data. To protect your data, back it up before formatting or partitioning this device.

**IMPORTANT NOTES:**

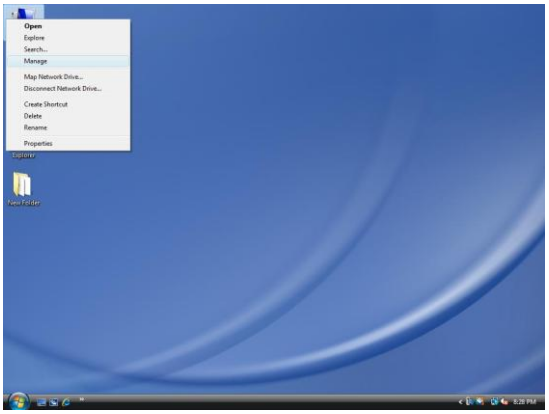
1. All programs should be closed before beginning.
2. Connect the Rocstor hard disk drive to your computer using the appropriate cables.
3. Turn ON the Rocstor hard disk drive.
4. The initial goal is to reach the Control Panel. If you know how to get there, skip this section and go directly to Instruction 1 (Instructions for Partitioning and Formatting from FAT 32 to NTFS.) A fast way of reaching "Disk Management" is to right click "My Computer" icon and left click on "Manage" in the drop down menu. The next window is "Computer Management."
   In the left menu, click "Disk Management."
5. The ultimate goal is to reach Disk Management. If you know how to get there, skip this section and go directly to Instruction 4 (Instructions for Partitioning and Formatting from FAT 32 to NTFS).
6. Due to different views that are possible on Windows operating systems (2000, XP, Vista, Windows 7), we will provide various ways of reaching the Control Panel.
7. "Click" means left click. "Right Click" will be so labeled.
8. Some computers are set so a single "click" will perform the task, such as opening a window. Depending on your mouse setting, you may have to double click to get to the next window. If a single click does not open the next window, please double click.

**DIFFERENT WAYS TO GET TO THE CONTROL PANEL:**
(You may use any one of the following methods)

1. If the icon “My Computer” shows on your desktop, click or double click on the icon. Under “Other Places” click on “Control Panel.”

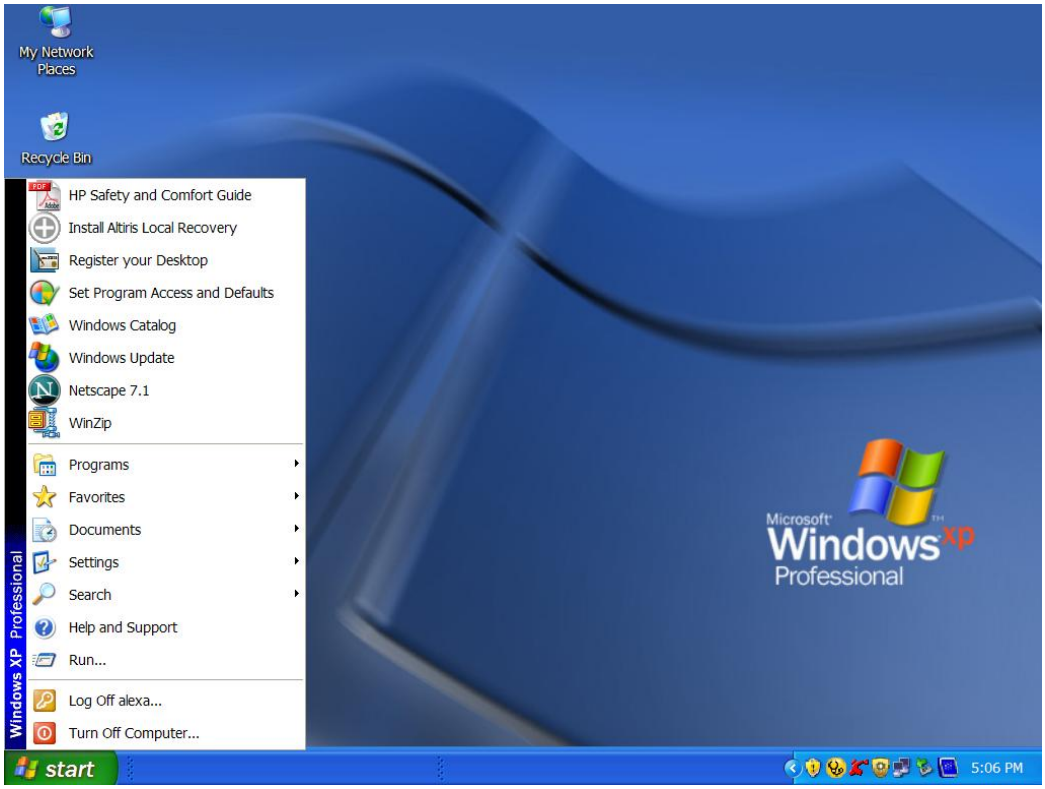



Under Windows XP



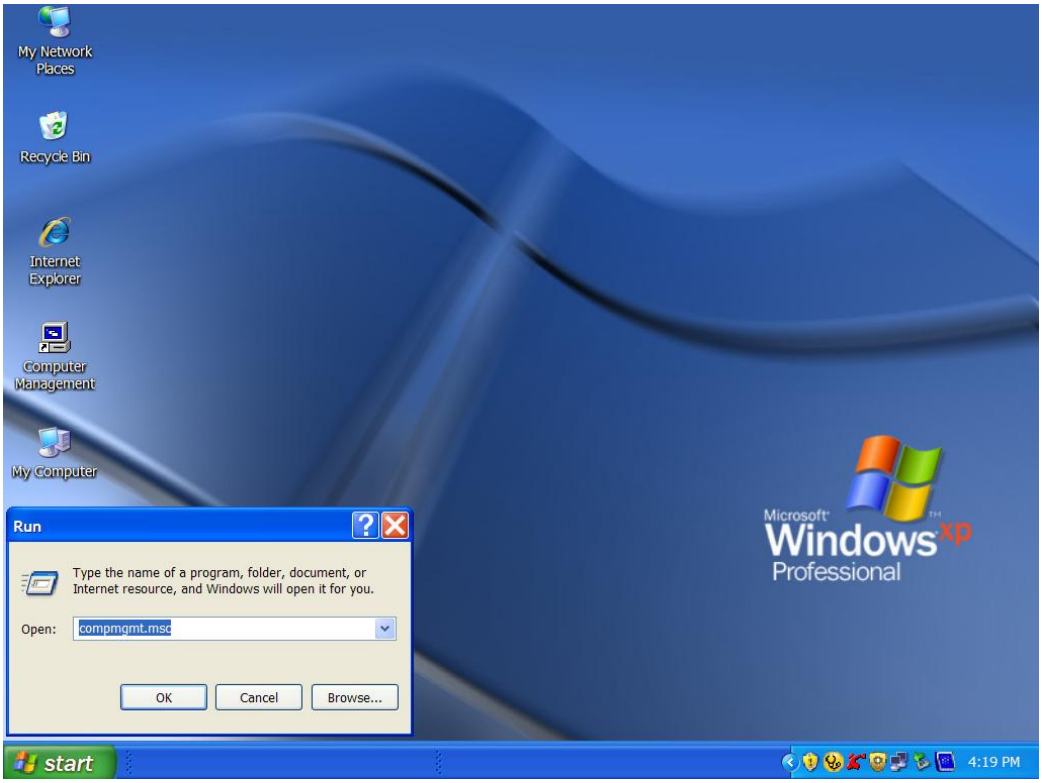
under Vista/Windows 7 OS

2. If the icon “My Computer” does not show on your desktop, click on the Start icon on the lower left of your screen. If the Control Panel link **is** displayed, click on the Control Panel link.



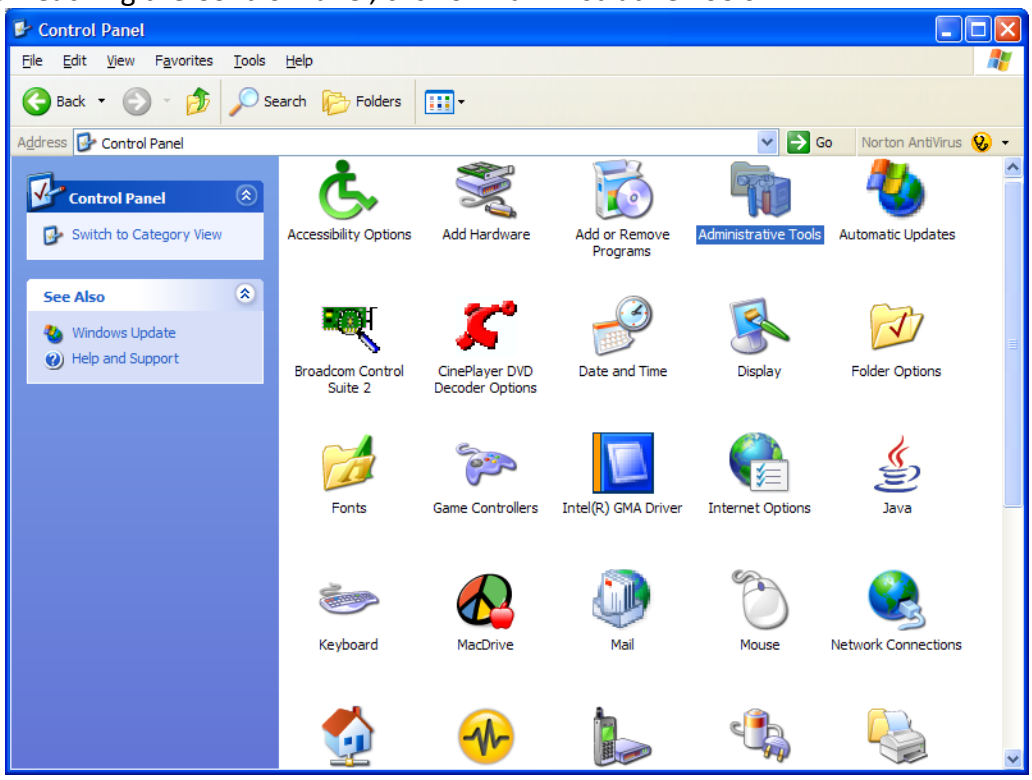
3. If the icon “My Computer” does not show on your desktop, click on the Start icon on the lower left of your screen. If the Control Panel link **is not** displayed, click on the Settings link and then click on the Control Panel link.

4. Click on the Start icon on the lower left of your screen. Click on Run. Delete anything listed in the Open window. Type the following: compmgmt.msc and then click OK. Skip to INSTRUCTION # 4 (Instructions for Partitioning and Formatting from FAT 32 to NTFS {page 24}).



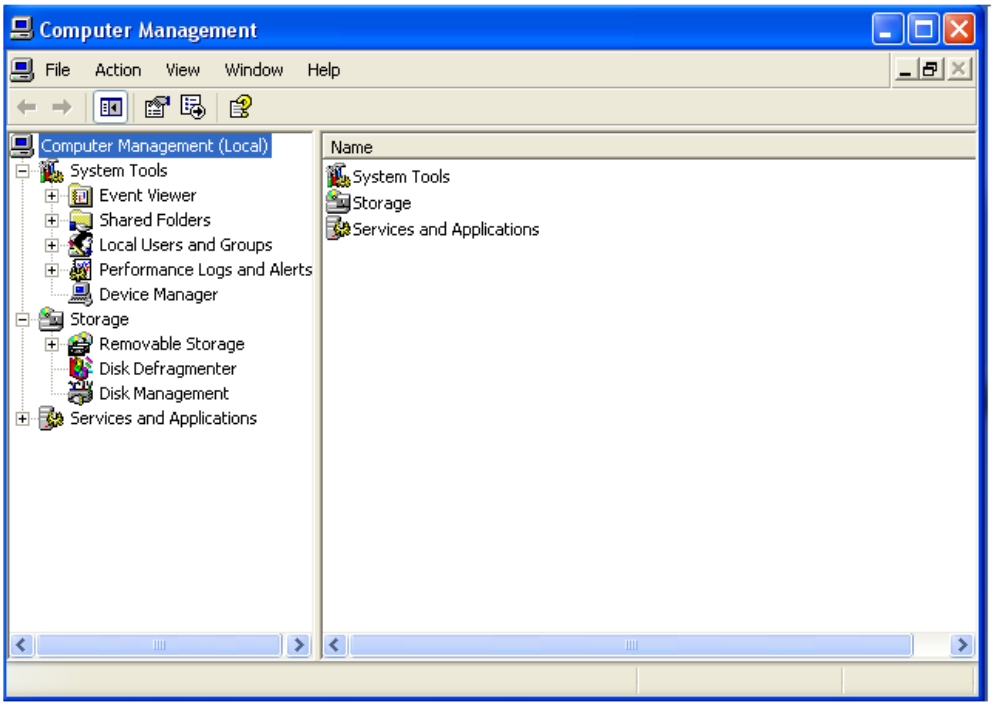
## INSTRUCTIONS UPON REACHING CONTROL PANEL

a. After reaching the Control Panel, click on Administrative Tools.




b. After reaching Administrative Tools, click on Computer Management.

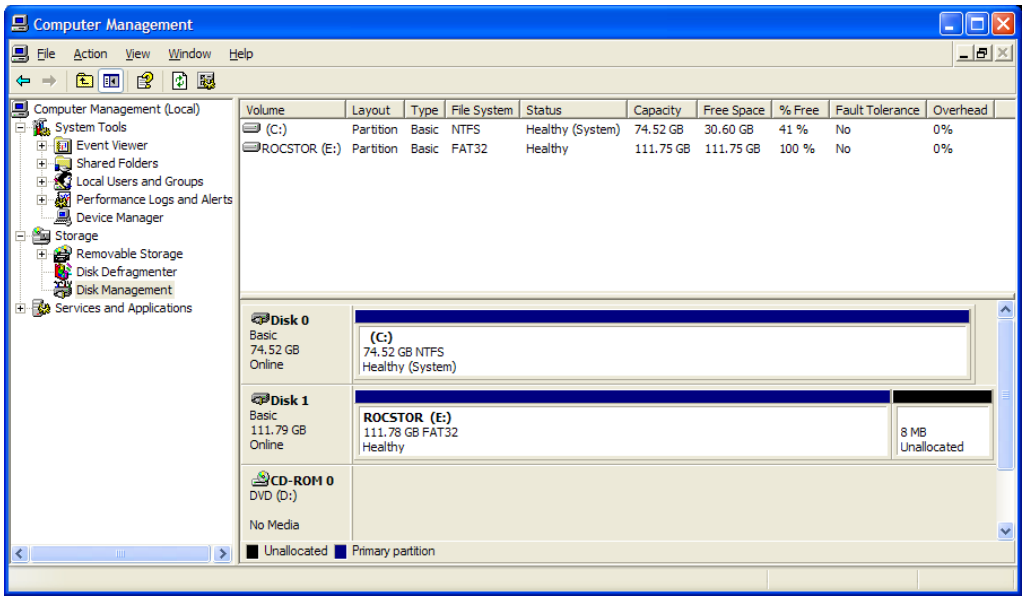
c. After reaching Computer Management, click on Disk Management.



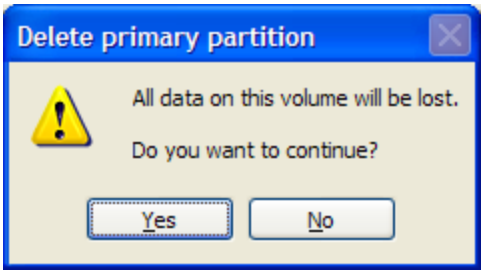
**INSTRUCTIONS FOR PARTITIONING AND FORMATTING FROM FAT32 to NTFS**

1. In the “Disk Management” window, right click the Rocstor drive in the upper portion of the menu to highlight it. In the drop down menu, select “Delete Partition.”

**WARNING:** Formatting and Partitioning the Rocpro Drive will destroy all of its data. To protect your data, back it up before formatting or partitioning this device.

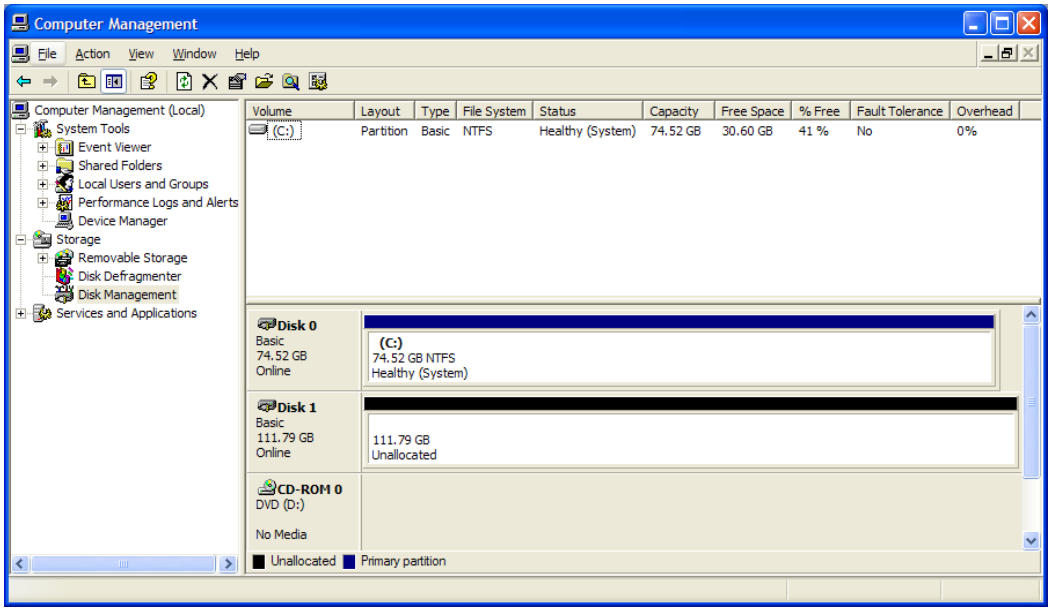



2. The next window is “Delete primary partition.” Click on Yes.

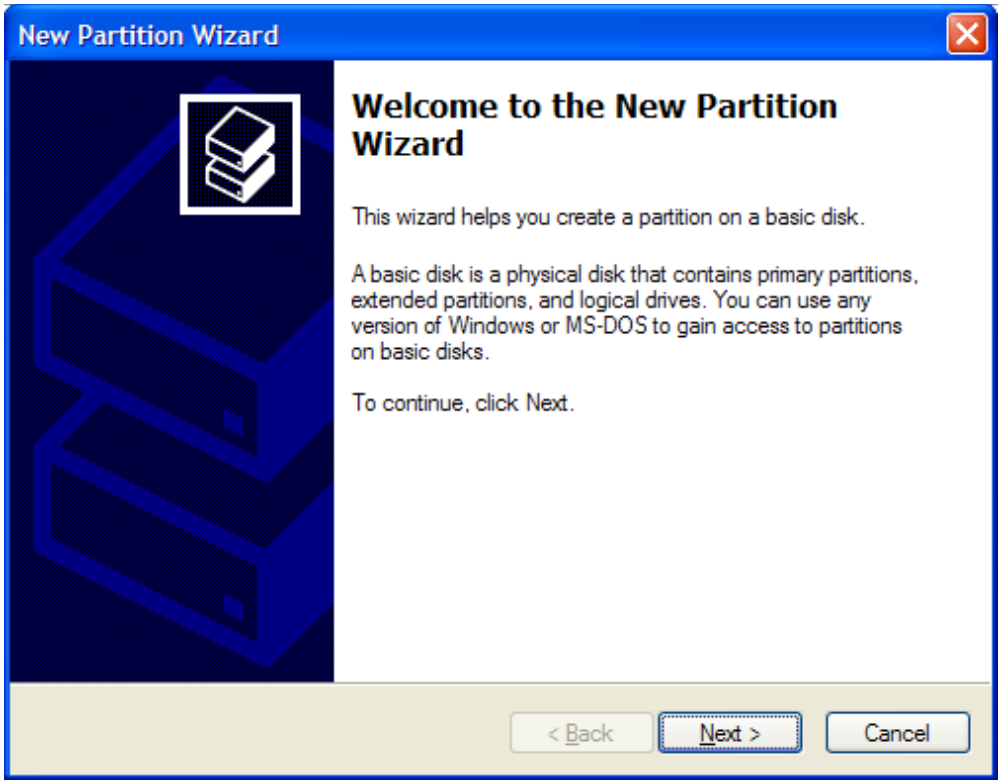



3. At this point the Rocstor drive will not show up on the “Disk Management Volume” window in the upper menu.

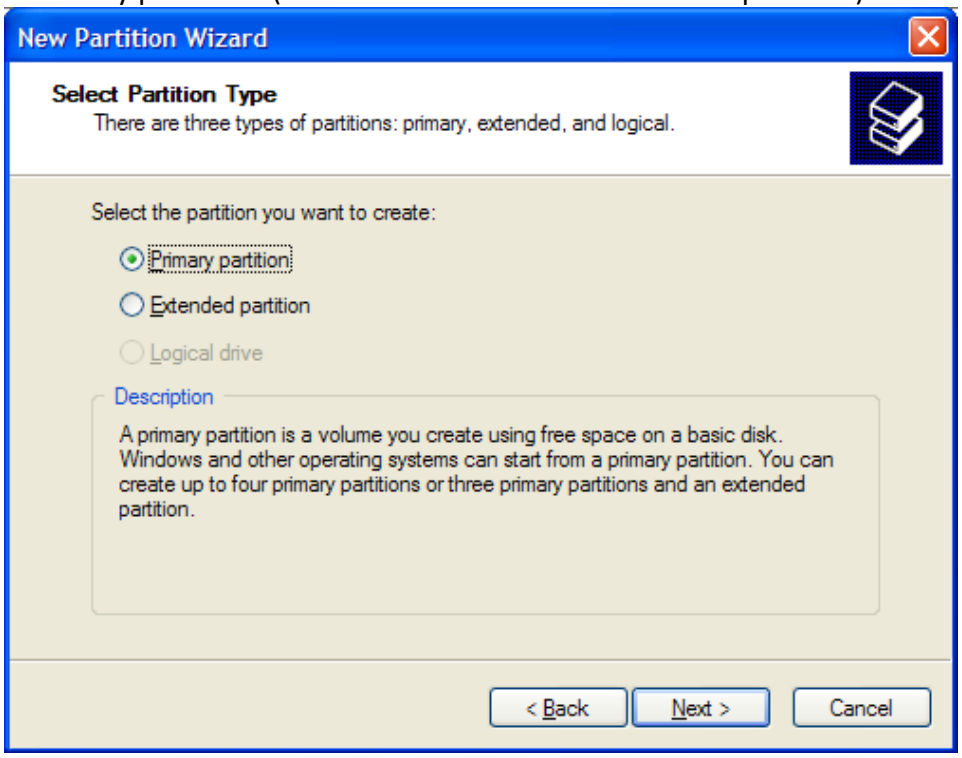
4. The Rocstor drive will show up in the lower menu as an “Unallocated” disk.



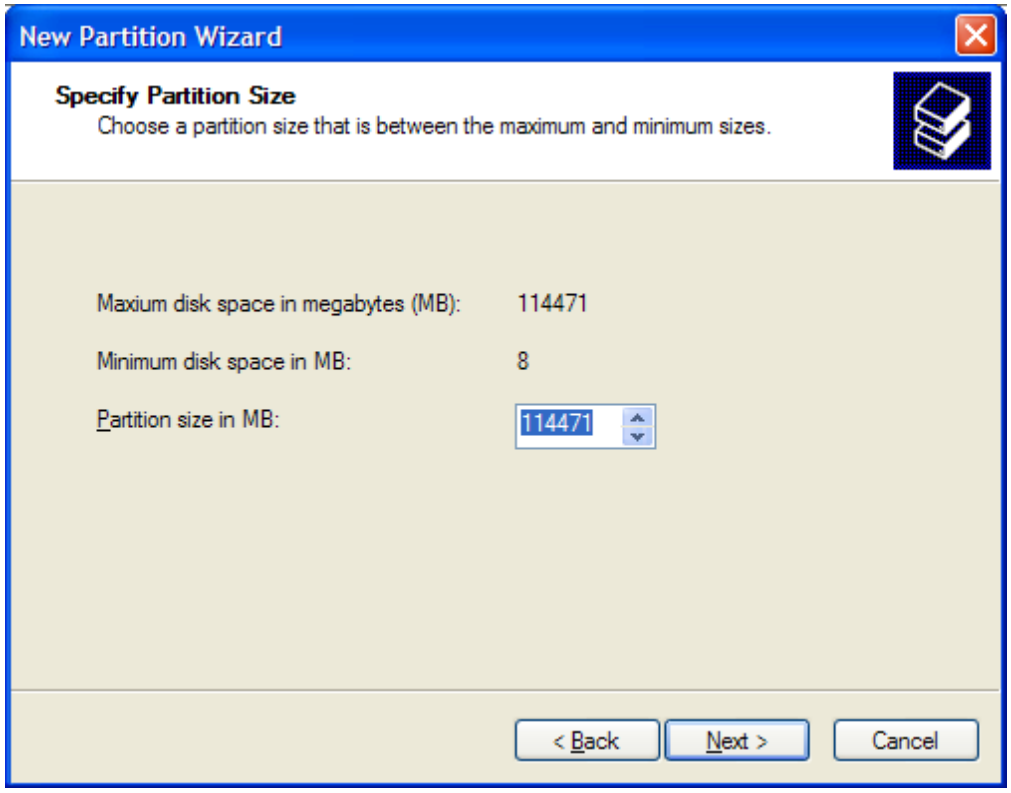

5. Right click anywhere in the “Unallocated” disk area in the lower menu.
6. Click on “New Partition.”
7. You are taken to “Welcome to the New Partition Wizard.” Click “Next”.


New Partition Wizard
Welcome to the New Partition Wizard
This wizard helps you create a partition on a basic disk.
A basic disk is a physical disk that contains primary partitions, extended partitions, and logical drives. You can use any version of Windows or MS-DOS to gain access to partitions on basic disks.
To continue, click Next.
< Back
Next >
Cancel

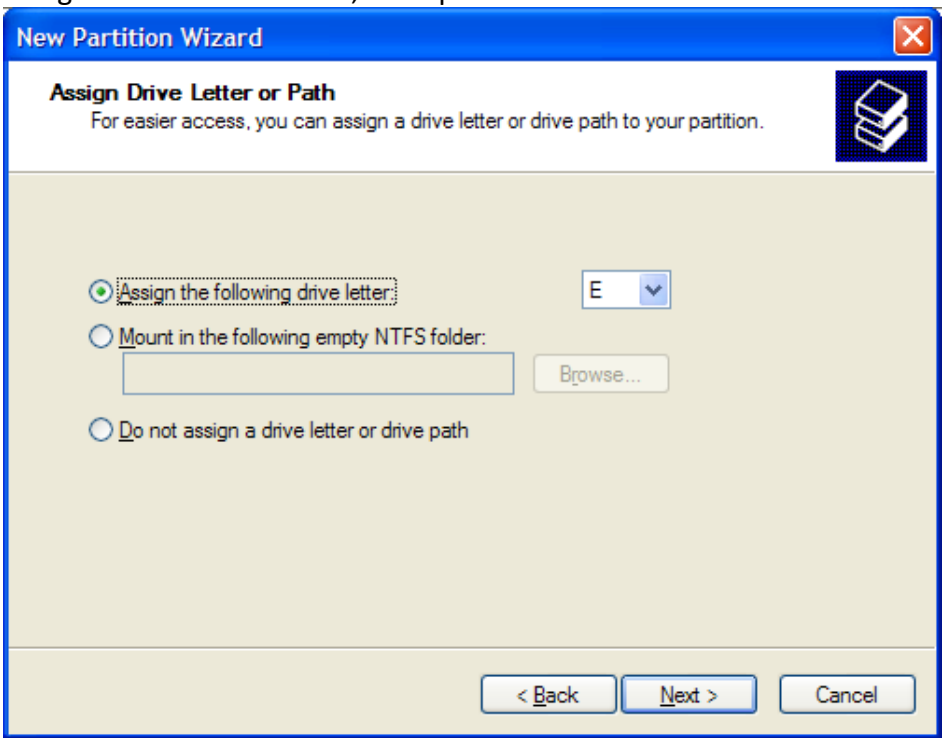
8. Click on “Primary partition” (it should be selected as the default partition). Click “Next”.


New Partition Wizard
Select Partition Type
There are three types of partitions: primary, extended, and logical.
Select the partition you want to create:
Primary partition
Extended partition
Logical drive
Description
A primary partition is a volume you create using free space on a basic disk. Windows and other operating systems can start from a primary partition. You can create up to four primary partitions or three primary partitions and an extended partition.
< Back
Next >
Cancel

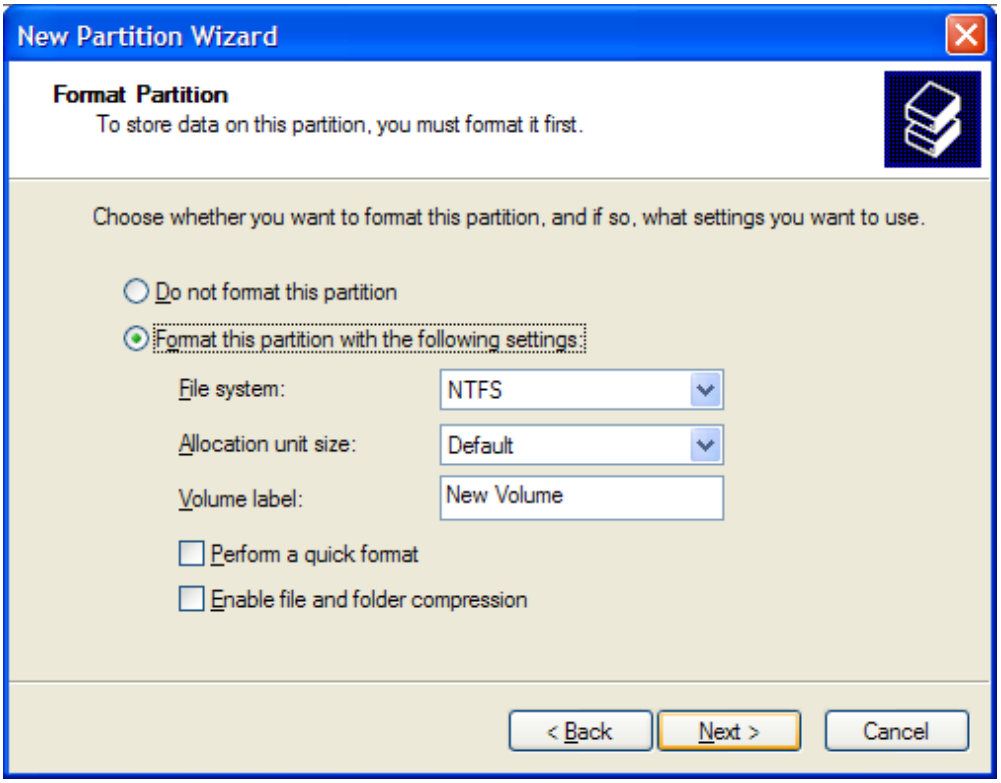
9. Under “Specific Partition Size,” click Next to accept the default setting, which is the maximum size allowed.


New Partition Wizard
Specify Partition Size
Choose a partition size that is between the maximum and minimum sizes.
Maxium disk space in megabytes (MB): 114471
Minimum disk space in MB: 8
Partition size in MB: 114471
< Back
Next >
Cancel

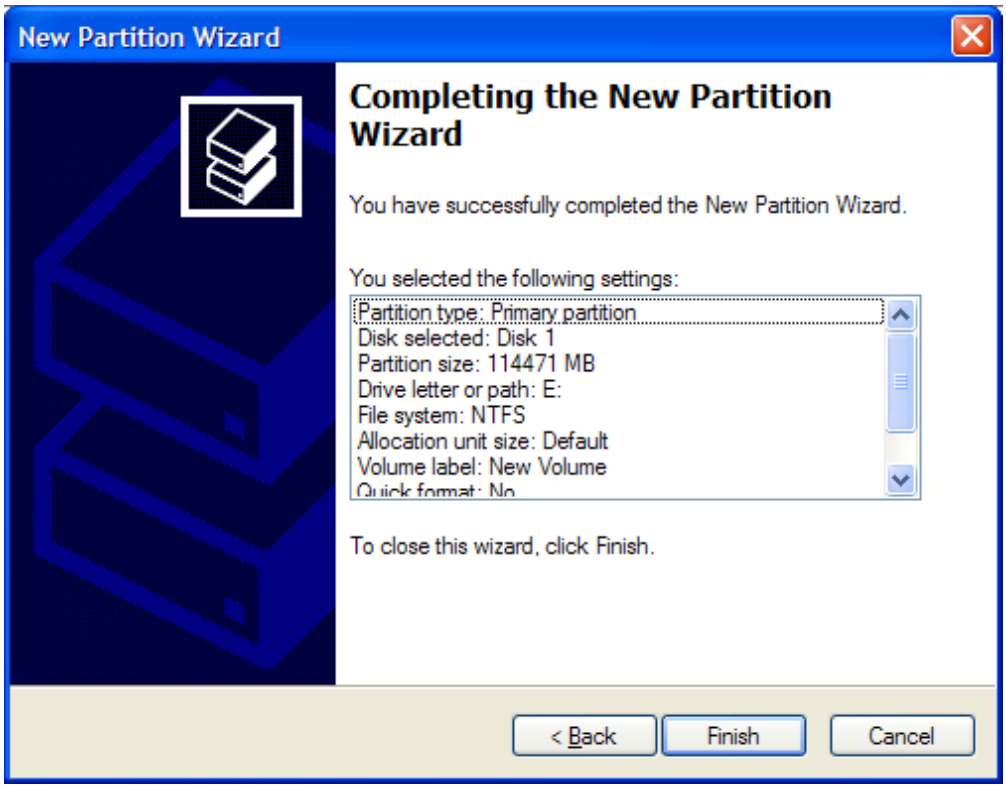
10. Under “Assign Drive Letter or Path,” accept the default letter and click “Next”.

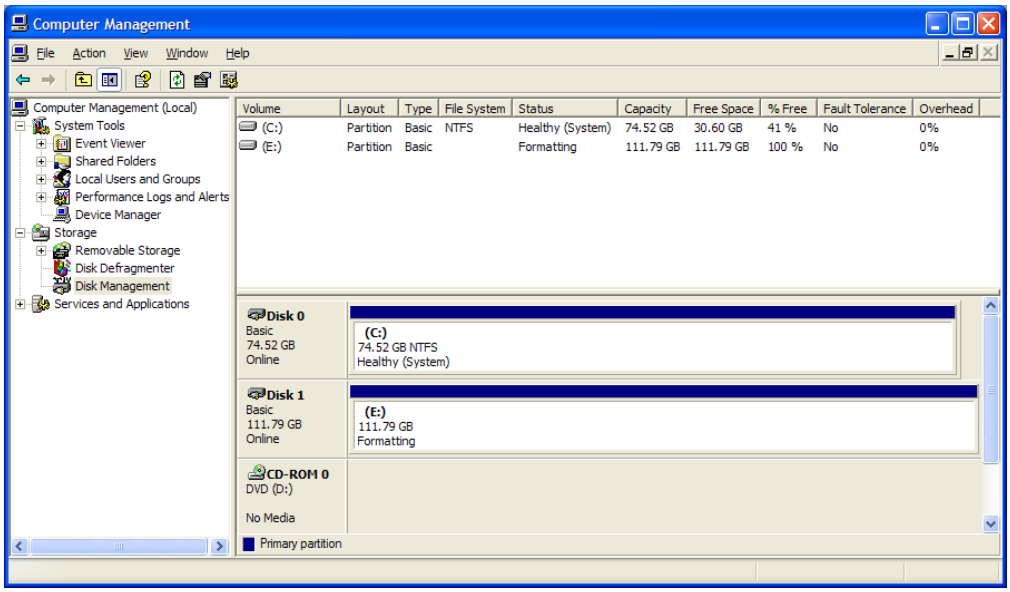

New Partition Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
E
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

11. In the “Format Partition,” accept the default setting.

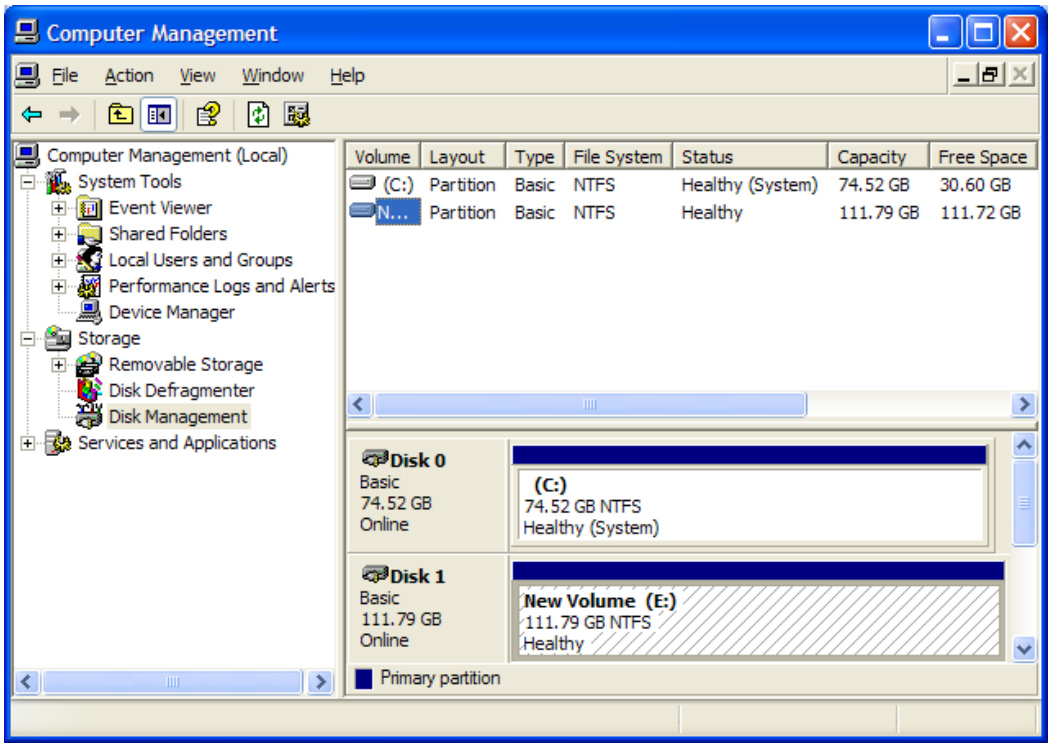

New Partition Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this partition, and if so, what settings you want to use.
Do not format this partition
Format this partition with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
New Volume
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

12. The “Volume label” can be changed to any name up to 11 characters.
13. Suggest that “Quick Format” be selected and then click “Next”.
14. You now reached the “Completing the New Partition Wizard” screen. It displays the various settings you previously selected. If you are satisfied with your selections, click “Finish” to complete the new formatting. At this time the Rocstor disk drive is being formatted, which may take a few minutes.



15. You will return automatically to the “Disk Management” window and will see the newly formatted Rocstor disk on the screen with the name you selected. If no new name was entered in the “Volume label,” the Rocstor drive will show up as “New Volume.” To rename the volume at this time, right click “New Volume” and click “Properties.” You can now change the volume name up to 11 characters. Click OK.




16. You can also change the name at any time in the future by reaching the “Properties” menu of the Rocstor drive.
17. You can now Exit or close to return to the desktop.

## Troubleshooting

Rocstor data storage products are subjected to several quality control tests before leaving our factory. However, from time to time, the product may not work after shipment or would experience intermittent problems under certain criteria and/or situations. Should you experience a problem with your Rocpro HD, please review the Manual and read the possible solutions that fit your problem. (The User Manual is updated regularly so check the Rocstor website for an updated Manual). Please contact Rocstor technical support listed under contact information at the end of this Manual.

## Troubleshooting for MACINTOSH computers

**Problem:** The computer does not recognize the drive
**Solutions:**

- Is the Rocpro green light ON and is the cable connected from the HD device to the computer. Rocpro HD icon should appear on the desktop. Continue to review this guide to find the solution.

- Your computer's Minimum requirements may not meet the minimum system requirements as indicated in this Manual. Page 7

- Confirm that the outlet is providing the correct voltage and the electrical power cord is securely attached to both the outlet and the Rocpro drive. Poor or loose connections can result in loss of power and possible damage to the drive. Ensure that the ON/OFF switch is turned to the ON position.

- If the Rocpro drive is connected to an outlet via an Undisrupted Power Supply (battery Backup) or a surge protector, be sure that they provide the correct voltage and they are all switched "ON" and receiving electricity.

- Please review this Manual's installation procedure for the operating system and interface you are using.

- Read the Manual's installation procedure to ensure it was properly followed.

- Please check the cable connections as the cables must be properly and securely attached to the computer and hard drive. Ensure that there is a firm connection. It is suggested that the cables be detached and reattached, and that the computer be shut off for 20 seconds and then restarted.

- Ensure that the Rocpro drive has been properly reformatted by reviewing the User Manual.

- Have you checked to confirm that the computer's operating system works with the file system?

- Review the manual that came with your computer to ensure that the file system is compatible with the operating system.

**Problem:** The Rocpro drive is not working fast enough.
**Solution:**

- You may have too many devices connected to your computer (such as Laptop computers.) Disconnect some devices and observe if there is an improvement in performance.

**Problem:** There is a decrease in performance when the Rocpro drive is connected via the USB cable to a USB 3.0 port.
**Solution:**

- Ensure that the USB 3.0 (and/or USB 2.0) drivers for the host bus and device have been properly and securely installed. You may reinstall to assure proper installation.

**Notes**:

- When connecting the device to USB 3.0 port in your computer, please be sure that the connection at the host computer is Supper Speed USB 3.0 and drivers (if required) are installed; otherwise you may experience slower transfer speed between the host computer and the Rocpro device.

**Notes - Mac OS 10x**:

- Rocpro drives are designed to save electricity and subsequently the wear and tear of the internal hard drive by having the hard drive stop spinning when the Rocpro is not accessed for a certain amount of time (sleeping mode). Under Mac OS 10 you it might cause an error please ignore the error message as it might take few seconds to start spinning at the designated speed (wake up.)

- You may require upgrading to a higher version of Mac OS if your host computer does not recognize the Rocpro device when connected via FireWire.

- You must avoid particular characters similar to ^!?\< when coping to FAT 32 volume section.

## Troubleshooting for PC WINDOWS based computers

**Problem:** The computer does not appear to recognize the drive.
**Solutions:**

- A window should appear, notifying you that a device is connected and/or the Rocpro HD icon should appear on the "My Computer" folder.

- Your computer's Minimum requirements may not meet the minimum system requirements as indicated in this Manual. Page 7

- Confirm that the outlet is providing the correct voltage and the electrical power cord is securely attached to both the outlet and the Rocpro drive. Poor or loose connections can result in loss of power and possible damage to the drive. Ensure that the ON/OFF switch is turned to the ON position.

- If the Rocpro drive is connected to an outlet via an Undisrupted Power Supply (battery Backup) or a surge protector, be sure that they provide the correct voltage and they are all switched "ON" and receiving electricity.

- Please review the Manual's installation procedure in reference to Formatting, Operating Systems and Interfaces you are using to ensure they were properly followed.

- Please check the cable connections as the cables must be properly and securely attached to the computer and hard drive. Ensure that there is a firm connection. It is suggested that the cables be detached and reattached, and that the computer be shut off for 20 seconds and then restarted.

- If a conflict with drivers or extensions exists, contact Rocstor for assistance; email tech support at support@rocstor.com or call technical support department at 888.877.7716.

**Problem:** The FireWire ports would not mount (work) with Windows 2000
**Solution:**

- You may require installing Windows 2000 Service pack 4. You may download the Service Pack 4 update for free from the Microsoft website. http://www.microsoft.com/Downloads/details.aspx?familyid=1001AAF1-749F-49F4-8010-297BD6CA33A0&displaylang=en

**Problem:** The Rocpro drive is not working fast enough
**Solution:**

- You may have too many devices connected to your computer (in particular in case of Laptops.) Disconnect some devices and observe if there is an improvement in performance.

**Problem:** The performance and/or transfer speeds are slow when the Rocpro drive is connected to my USB port.
**Solution:**

- USB ports come in different speeds from 12Mbits/s (USB 1.0), 480Mbits/s (USB.2) to up to 5,000Mbits/s (USB 3.0). If the Rocpro HD is connected to a USB 2.0 or 1.1 port (low speed) or hub, the drive will work slower than if connected to a USB 3.0 port or hub.

Simply: if the USB 3.0 cable is connected (from Rocpro 900e) to a USB 2.0 connector in your host computer the transfer speed will be reduced to up to 480 Mbit/s (which is the maximum transfer speed of USB 2.0)

**Problem:** There is no increase in performance when the Rocpro drive is connected via the USB cable to a USB 3.0 port.
**Solution:**

- Ensure that the USB 3.0 (and/or USB 2.0) drivers for the host bus and device have been properly and securely installed. You may reinstall to assure proper installation.

**Problem:** The drive is working slow when connected directly to a USB 3.0 port on your computer
**Solution:**

- Review the minimum system requirements for your computer to ensure it supports Supper Speed USB 3.0.

**General Notes**:

- When connecting the device to USB 3.0 port in your computer please be sure that the connection at the host computer is High Speed USB 3.0 and drivers (if required) are installed, otherwise you may experience slower transfer speed between the host comport and the Rocpro device.

**Front Lights:**
**Problem:** The front Light does not come ON.
**Solutions:**

- The Rocpro device may not be connected to electricity.
- The device switch is in the OFF position.
- The Built-in Power Supply does not work. Contact Rocstor technical support.

**Situation:** The light is green but it also flickers in Red.
**Solutions:**

- The Light is OFF when the drive is Reading/Writing; do not turn the device OFF in this situation as you may lose the data being transferred in R/W.

- The light remains Green at normal operation or idle operation.

# KNOWLEDGE BASE

**Rocpro 900e Unique Features**

- **Built-in power supply**
  (No bulky AC adapter necessary.)
  **Direct Connection to Electricity.**
  U.S.A. and International Auto-Switch
  Power Supply
  Uses any standard (certified) computer cable

- Free carrying case.

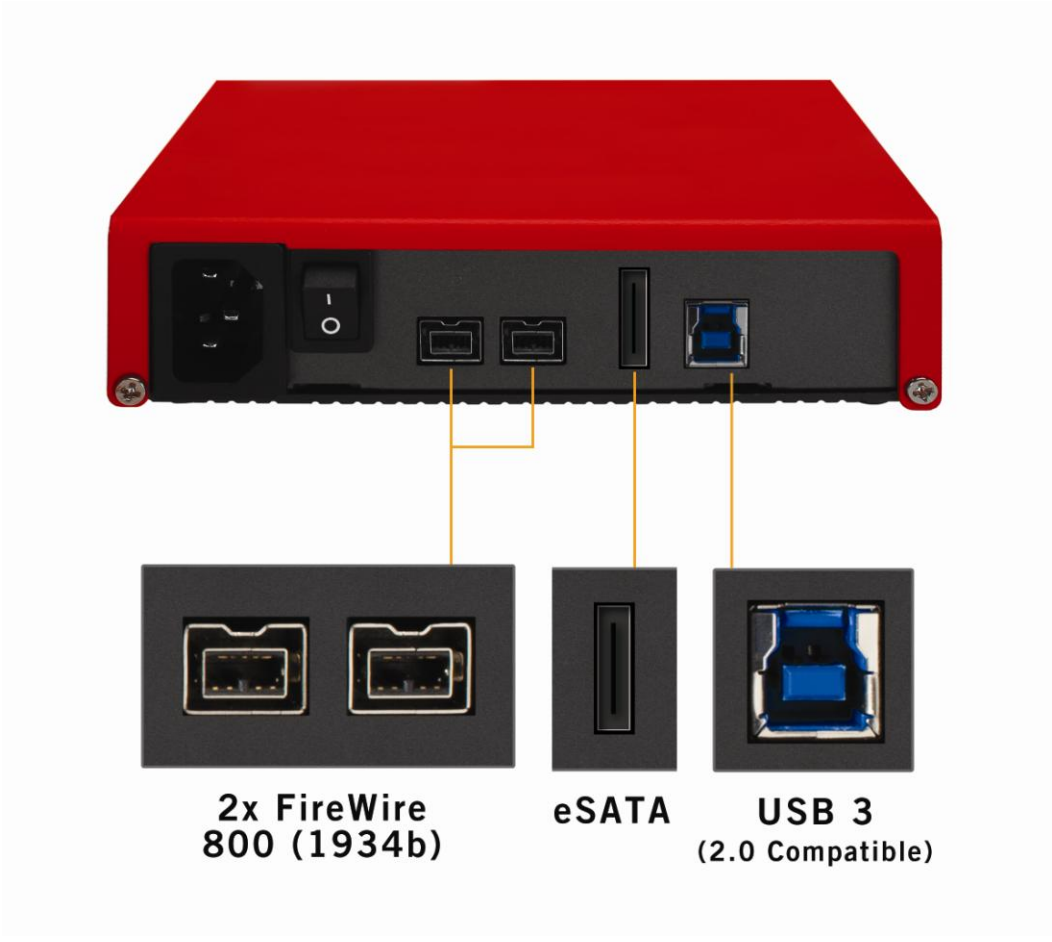
- The Advanced Aluminum Material enclosure performs as a heat sink around the hard drive. The state of the art casing is designed and engineered to maximize heat dissipation.

- The Fan-less enclosure significantly reduces noise and vibration.
- The case should be in an open environment to permit air to flow around the drive. It is normal for the case to become harm when it is being used.
- The Rocpro series is designed for stackable, horizontal and vertical use.

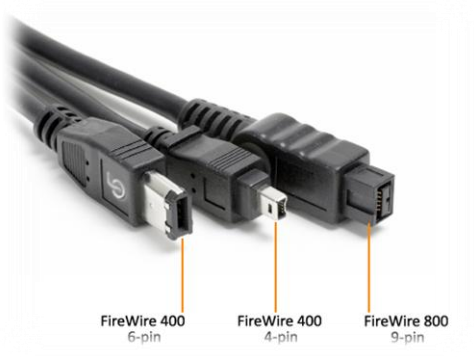
- Includes all necessary cables and software
- Easy plug-and-play installation (pre-formatted Hard Drive)
- Cross-platform compatibility
- Daisy-chain multiple drives as your storage needs grow
- Designed for horizontal or vertical use
- Small footprint
- 2 year limited warranty
- 2 year unlimited toll-free telephone tech support

## Specifications

- **Dimensions:** 5.8 x 8.7 x 1.6 inches
  14.7 x 22.0 x 4.1 cm
- **Weight:** 2.9 pounds (1.3 kilograms)
- **Transfer rates: USB 3.0 up to 5,000 Mbits/s; eSATA up to 3,000 Mbits/s; FireWire up to 800** MB/s; FireWire 400 up to 400 Mbits/s; USB 2.0 up to 480 Mbits/s; or USB 1.1 up to 12 Mbits/s.



## Introductions: Interfaces (ports) and Cables




**FireWire** is Apple Inc.'s brand name for the IEEE **1394** interface (although the 1394 standard also defines a backplane interface). FireWire is also known as **i.LINK** (Sony's name) and **DV** (Panasonic's name, not to be confused with DV camcorder tapes). It is a serial bus interface standard for high-speed communications and isochronous real-time data transfer, frequently used in a personal computer and digital audio / digital video.

## Standards and versions

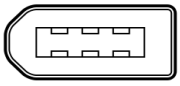
**FireWire 400 (IEEE 1394)** 6-Pin connector can transfer data between devices at 100, 200, or 400 Mbits/s half-duplex data rates (the actual transfer rates are 98.304, 196.608, and 393.216 Mbits/s, i.e. 12.288, 24.576 and 49.152 megabytes per second respectively). These different transfer modes are commonly referred to as S100, S200, and S400.

Cable length is limited to 14.8 ft (4.5 meters), although up to 16 cables can be daisy-chained using active repeaters, external hubs, or internal hubs often present in FireWire equipment. The S400 standard limits any configuration's maximum cable length to 230Ft (72 meters.) The 6-pin connector is commonly found on desktop computers and can supply the connected device with power.

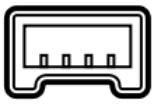
The 6-pin powered connector adds power output to support external devices. Typically a device can pull about 7 to 8 watts from the port. However, the voltage varies significantly from different devices. Voltage is specified as unregulated and should nominally be about 25 volts (range 24 to 30). Apple's implementation on laptops is typically related to battery power and can be as low as 9 V but more likely about 12 V.

**FireWire 400 (IEEE 1394a)**

1394a also standardized the 4 pin connector already widely in use. The 4-pin version is used on many consumer devices such as camcorders, some laptops and other small FireWire devices. Though fully data compatible with 6-pin interfaces, it lacks power connectors.



**FireWire 800 (IEEE 1394b)** 9-pin FireWire 800/3200 (IEEE 1394b) connector was introduced commercially by Apple in 2003. This newer 1394 specification (1394**b**) and corresponding products allow a transfer rate of 786.432 Mbits/sec full-duplex via a new encoding scheme termed beta mode. It is backwards compatible to the slower rates and 6-pin connectors of FireWire 400. However, while the IEEE 1394**a** and IEEE 1394**b** standards are compatible, the FireWire 800's connector is different from FireWire 400's connector, making the two cables incompatible. An adapter or adapter cable, purchased from a local electronics store allows the connection of older devices to the newer port.



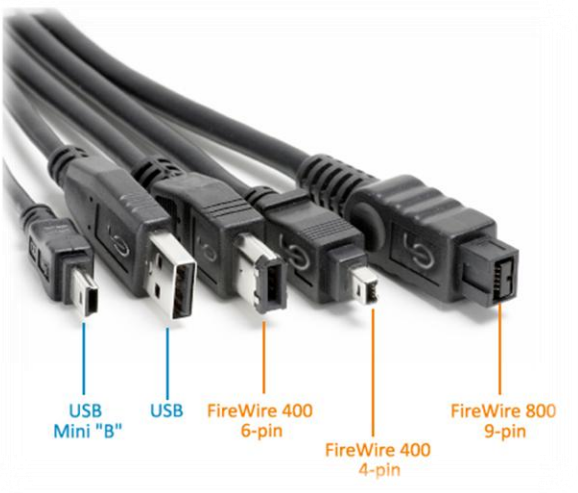
The full IEEE 1394b specification supports data rates up to 3200 Mbits/sec over beta-mode optical connections up to 320 Ft (100 meters) in length.

**U**niversal **S**erial **B**us (**USB**) is a serial bus standard to interface devices. USB was designed to allow peripherals to be connected using a single standardized interface socket and to improve Plug-and-play capabilities by allowing devices to be connected and disconnected without rebooting the computer (hot-swapping). Other convenient features include providing power to low-consumption devices without the need for an external power supply and allowing many devices to be used without requiring manufacturer specific, individual device drivers to be installed.

USB can connect computer peripherals such as external hard drives storage devices, keyboards, PDAs, scanners, digital cameras, printers, personal media players and flash drives. For many of those devices USB has become the standard connection method.

**USB supports three data transfer rates:**

- USB 2.0: A Hi-Speed rate of 480 Mbits/s (60 MB/s). All Rocstor devices are integrated with USB 2.0, *Hi-Speed*.
- USB 1.1: A **Full Speed** rate of 12 Mbits/s (1.5 MB/s). All USB Hubs support Full Speed.
- USB 1.0: A **Low Speed** rate of 1.5 Mbits/s (187 KB/s)



**S**erial **A**dvanced **T**echnology **A**ttachment (**SATA)** is a computer bus primarily designed for transfer of data between a computer and storage devices (like hard disk drives or optical drives).

The main benefits are faster transfers, ability to remove or add devices while operating (hot-swapping), thinner cables that let air cooling work more efficiently, and more reliable operation with tighter data integrity checks than the older Parallel ATA interface.

**SATA 1.5 GB/s and SATA 3 GB/s**
SATA is designed to be backward and forward compatible with future revisions of the SATA standard.

External SATA

Maximum cable length is 6.6 Ft (2 meters). USB and FireWire allow longer distances.

This table shows the real speed of SATA 1.5 Gbits/s and SATA 3 GB/s:

| | **SATA 1.5 Gbits/s** | **SATA 3 Gbits/s** |
|---|---|---|
| Frequency | 1500 MHz | 3000 MHz |
| Bits/clock | 1 | 1 |
| 8b10b encoding | 80% | 80% |
| Bits/Byte | 8 | 8 |
| Real speed | **150 MB/s** | **300 MB/s** |

SATA offers performance as high as 3.0 GB/sec per device with the current specification. It also offers new features such as hot swapping.

**Compassion**

**Chart:**

| | Raw Bandwidth (Mbits/s) | Transfer Speed (Mbits/s) | Max. Cable Length Feet (meters) | Power Provided | Device per channel |
|---|---|---|---|---|---|
| SAS | 3000 | 375 | 26 Ft (8 m) | No | 4 |
| eSATA | 3000 | 375 | 6.5 Ft (2 m) | No | 1 (15 W/ port multiplier) |
| SATA 300 | 3000 | 375 | 3.3 Ft (1 m) | No | 1 per line |
| SATA 150 | 1500 | 187.5 | 3.3 Ft (1 m) | No | 1 per line |
| PATA (133) | 1064 | 133 | 18 inches (0.46 meters) | No | 2 |
| FireWire 3200 | 3144 | 393 | 100; (Cables available for 100m+) | 12–25 V, 15 W | 63 |
| FireWire 800 | 786 | 98.25 | 100 [11] m | 12–25 V, 15 W | 63 |
| FireWire 400 | 393 | 49.13 | 15 Ft (4.5 m) | 12–25 V, 15 W | 63 |
| USB 2.0 | 480 | 60 | 5 [14] m | 5 V, 2.5 W | 127 |
| USB 3.0 | 4800 | 600 | TBD | 5 V, 2.5 W | 127 |
| Ultra -320 SCSI | 2560 | 320 | 39 Ft (12 m) | No | 16 |
| Fiber Channel Over Copper Cable | 4000 | 400 | 39 Ft (12 m) | No | 126 16777216 with switches |
| Fiber Channel Over Fiber | 10520 | 2000 | 6.5- 164000 Ft (2–50000 m) | No | 126 16777216 with switches |
| Infiniband 12x quad-rate | 120000 | 12000 | > 32 Ft (>10 m) Copper <32,800 Ft (<10000 m) Fiber | No | 1 with point to point Many W/switched Fabric |

## Introductions: Formatting

**File Allocation Table** (**FAT**)
FAT is a file system developed by Microsoft for MS-DOS and is the primary file system for consumer versions of Microsoft Windows.

The FAT file system is relatively uncomplicated and is supported by virtually all existing operating systems for personal computers. This makes it an ideal format for hard drives and other storage devices and a convenient way of sharing data between disparate operating systems installed on the same computer (a dual boot environment).

**FAT 32** is a disk formatting scheme which allows a maximum file size of 4 GB. Larger files require another formatting type such as HFS+ or NTFS.

Microsoft's Scan-Disk utility, included with Windows 95/98, places a volume limit of 127.53 gigabytes.

FAT 32 was introduced with Windows 95 OSR2. Windows 98 introduced a utility to convert existing hard disks from FAT16 to FAT32 without loss of data. In the NT line, native support for FAT32 arrived in Windows 2000.

Windows 2000 and Windows XP can read and write to FAT32 file systems of any size, but the format program included in Windows 2000 and higher can only create FAT32 file systems of 32 GB or less. This limitation is by design and was imposed because many tasks on very large FAT32 files become slow and inefficient when file systems exceed 32GB. This limitation can be bypassed when using the Windows command line Format utility or by using third-party formatting utilities.

**The maximum possible size for a file on a FAT32 volume is 4 GB minus 1 byte. Video capture and editing applications and some other software can easily exceed this limit.**

Until mid-2006, those who run dual boot systems or who move external data drives between computers with different operating systems had little choice but to stick with FAT32. Since then, full support for NTFS has become available in Linux and many other operating systems, by installing the FUSE library (on Linux) together with the NTFS-3G application. Data exchange is also possible between Windows and Linux by using the Linux-native ext2 or ext3 file systems through the use of external drivers for Windows, such as ext2 IFS. However, Windows cannot boot from ext2 or ext3 partitions.

**HFS Plus or HFS+**

This is a file system developed by Apple Inc. to replace their Hierarchical File System (HFS) as the primary file system used in Macintosh computers (or other systems running Mac OS). It is also one of the formats used by the iPod digital music player. HFS Plus is also referred to as **Mac OS Extended** (or, erroneously, "HFS Extended"), where its predecessor, HFS is also referred to as *Mac OS Standard* (or, erroneously, as "HFS Standard"). During development, Apple referred to this file system with the codename *Sequoia*.

HFS Plus is an improved version of HFS, supporting much larger files (block addresses are 32-bit length instead of 16-bit) and using Unicode (instead of Mac OS Roman or any of several other character sets) for naming the items (files, folders). Names were normalized to a form very nearly the same as NFD (there are some minor differences derived from the fact that the HFS Plus format was finalized before Unicode had standardized the NFD format). HFS Plus permits filenames up to 255 UTF-16 characters in length, and n-forked files similar to NTFS, though almost no software takes advantage of forks other than the data fork and resource fork. HFS Plus also uses a full 32-bit allocation mapping table, rather than HFS's 16 bits. This was a serious limitation of HFS, meaning that no disk could support more than 65,536 allocation blocks under HFS. When disks were small, this was of little consequence, but as larger-capacity drives became available, it meant that the smallest amount of space that any file could occupy (a single allocation block) became excessively large, wasting significant amounts of space. For example, on a 1 GB disk, the allocation block size under HFS is 16 KB, so even a 1 byte file would take up 16 KB of disk space.

HFS Plus volumes are divided into sectors (called logical blocks in HFS), that are usually 512 bytes in size. These sectors are then grouped together into allocation blocks which can contain one or more sectors. The number of allocation blocks depends on the total size of the volume. HFS Plus uses a larger value to address allocation blocks than HFS, 32 bits rather than 16 bits. This means it can access 4,294,967,296 ($=2^{32}$) allocation blocks rather than the 65,536 ($=2^{16}$) allocation blocks available to HFS.

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### Types of Limited Warranty Service

Your Rocstor Limited Warranty consists of repair or replacement of defective parts, including hard drives identified by Rocstor Support Organization as “pre-failure.”

### Carry-in Limited Warranty Service Available Monday - Friday

Under the terms of carry-in service, you may be required to deliver your Rocstor product to the Rocstor Service Center or an authorized service location for warranty repair. You must prepay any shipping charges, taxes or duties associated with transportation of the product. In addition, you are responsible for insuring any product shipped or returned for service. You assume risk of loss during shipping.

**YOU SHOULD MAKE PERIODIC BACKUP COPIES OF THE DATA STORED ON YOUR HARD DRIVE OR OTHER STORAGE DEVICES AS A PRECAUTION AGAINST POSSIBLE FAILURES, ALTERATION OR LOSS OF THE DATA. BEFORE RETURNING ANY UNIT FOR SERVICE, BE SURE TO BACK UP DATA AND REMOVE ANY CONFIDENTIAL, PROPRIETARY OR PERSONAL INFORMATION. ROCSTORAGE IS NOT RESPONSIBLE FOR DAMAGE TO OR LOSS OF ANY PROGRAMS, DATA OR REMOVABLE STORAGE MEDIA. ROCSTORAGE IS NOT RESPONSIBLE FOR THE RESTORATION OR REINSTALLATION OF ANY PROGRAMS OR DATA OTHER THAN SOFTWARE INSTALLED BY ROCSTORAGE WHEN THE PRODUCT WAS MANUFACTURED.**

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**Rocstor Replaceable Parts Program**
Where available, the Rocstor Replaceable Parts program ships approved replacement parts directly to you to fulfill your warranty. This will save considerable repair time. After you call the Rocstor Technical Support Center at **888.877.8777** a replaceable part can be sent directly to you. Once the part arrives, call the Rocstor Technical Support Center. A technician will assist you over the phone to ensure that the installation is quick and easy.

**Service Upgrades**
Rocstor offers extra coverage for your product. For information on service upgrades, visit www.rocstor.com. Service upgrades purchased in one country are not transferable to another country.

**Capacity Disclaimer**
Actual accessible hard drive capacity will indicate up to 10% lower than stated under different Operating Systems and formatting.

The storage volume is measured in total bytes before formatting. References to round numbers of gigabytes or terabytes are an approximation only. For example, a disk drive labeled as having 500GB (Gigabytes) has space for approximately 500,000,000 bytes before formatting. After formatting, the drive capacity is reduced by about 5% to 10% depending on the operating system and formatting used or "1GB = 1,000,000,000 bytes.

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**WARNING:** The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer

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All Rocstor hard drives are backed by free telephone technical support for two (2) years from the date of purchase. Please register your product with Rocstor. To register, fill in the Limited Warranty Registration form in the Support tab at www.rocstor.com.

Free telephone technical support is available weekdays from 9 AM until 6 PM Pacific Standard Time. Customers in the United States and Canada can call toll-free: **(888) 877-8777**; all others must call **(818) 449-2000**.

When calling for support, please have the product’s serial number (printed on the label on the bottom of the drive) and system hardware information available.

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